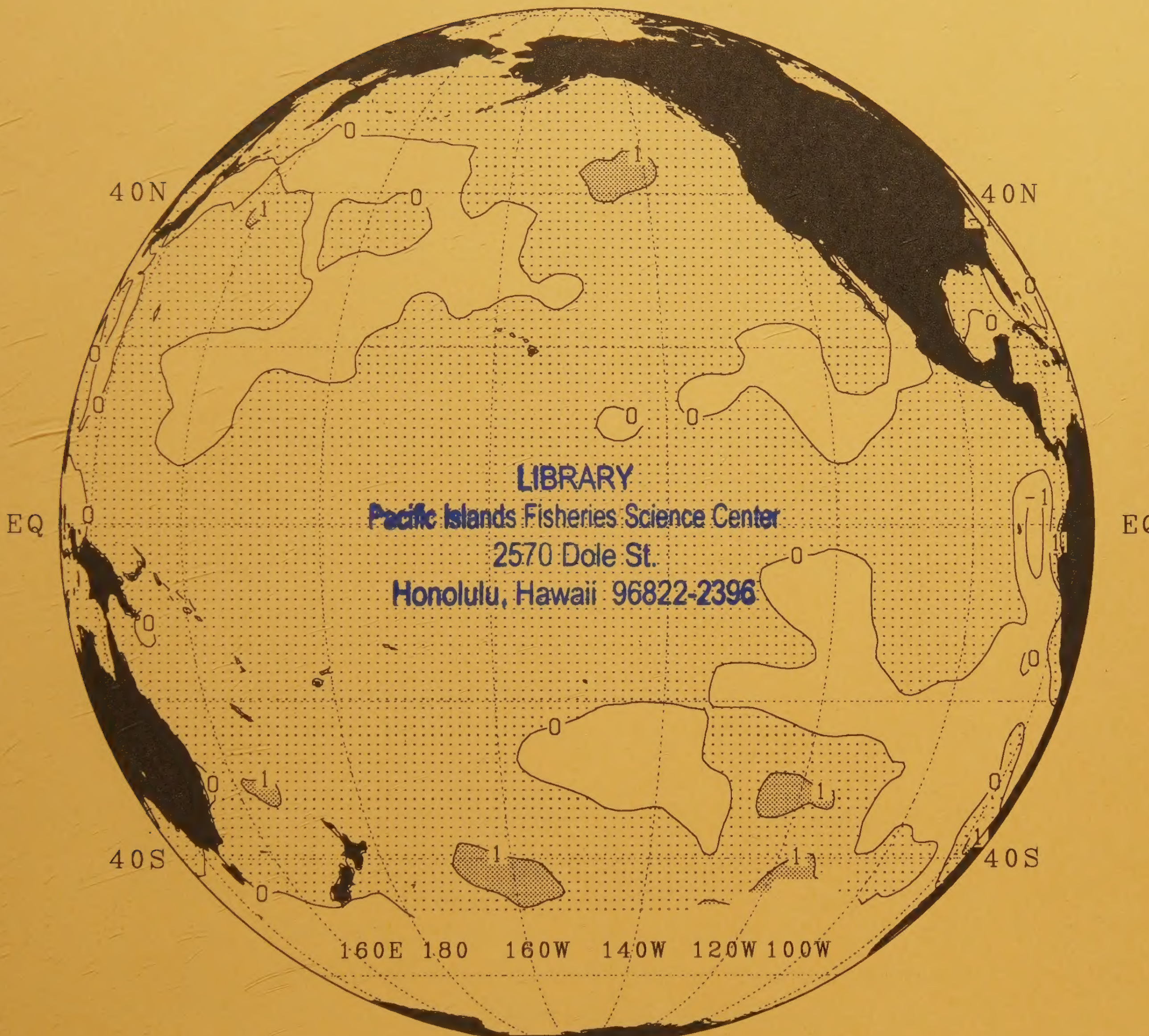
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気象庁海洋月報

Monthly Ocean Report
April 2005 (No. 148)



Climate and Marine Department
Japan Meteorological Agency

気象庁 気候・海洋気象部

平成17年4月

気象庁海洋月報は、気象庁 気候・海洋気象部 海洋気象情報室で作成しています。
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Monthly Ocean Report is prepared by the Office of Marine Prediction, Climate and Marine Department, Japan Meteorological Agency.

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表紙は、2005年4月の太平洋の月平均海面水温偏差図です。
陰影部は、平年より高温の海域を示しています。

The figure on the front cover shows the monthly mean SST anomalies for April 2005 in the Pacific Ocean.
Areas of positive anomalies are shaded.

目　次

* MGDSST (Merged satellite and *in-situ* data Global Daily SST)を使用している。
** 従来と同様の、現場観測による海面水温をもとにした解析値を使用している。

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* Based on MGDSST (Merged satellite and *in-situ* data Global Daily SST).
** Based on the traditional analysis using *in-situ* SSTs.

海況の特徴（２００５年４月）

日本近海の海況

海面水温は、沿海州南部沖、釧路沖、及び常磐沖から三陸沖にかけての海域で平年より1℃以上低かった。檜山・津軽沖では平年より0.5℃以上高かった（第４図）。

黒潮は、紀伊半島から東海沖を大きく蛇行し、上旬は30.5° N付近、中・下旬は31° N付近まで南下していた。その後、上旬は八丈島の東を北上し、三宅島付近を通過、中・下旬は八丈島から三宅島付近を通過して、房総半島沖を北東に流れていた（第９図）。

太平洋の海況

太平洋赤道域の海面水温は、140° Eから90° Wの広い範囲で平年より高く、150° Eから140° Wにかけてと110° Wから90° Wにかけて平年より0.5℃以上高かった。

北太平洋の海面水温は、35° N, 160° E 付近と 40° N、145° W 付近では平年より 1℃以上高かった。45° N、170° E、40° N、170° W、及び 30° N、165° W 付近では-0.5℃を超える負偏差が見られた（第１７図）。

Highlights April 2005

Seas adjacent to Japan

SSTs were more than 1℃ below normal in the seas off the southern coast of the Russian Maritime Provinces, off Kushiro and from off Joban to off Sanriku. SSTs were more than 0.5℃ above normal in the seas southwest of Hokkaido (Fig. 4).

The Kuroshio meandered significantly from the area off the Kii Peninsula to the area off Tokai. The southernmost position of the meander was at about 30.5°N in early April, and 31°N during the rest of the month. It passed east of Hachijo Island and near Miyake Island in early April, and near Hachijo Island and Miyake Island during the rest of the month; then it flowed NE-ward off the Boso Peninsula (Fig. 9).

Pacific Ocean

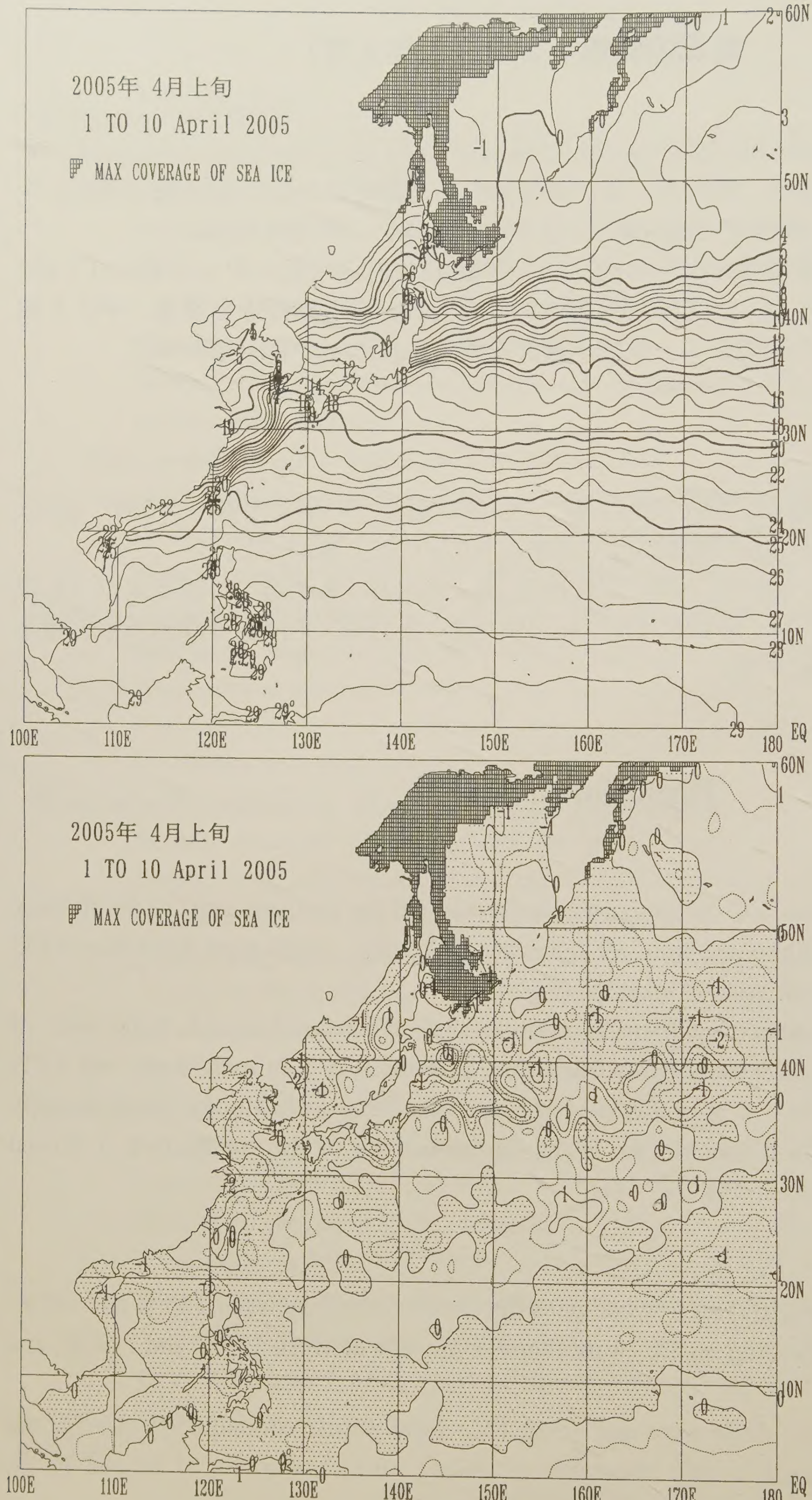
In the equatorial Pacific, SSTs were generally above normal between 140°E and 90°W. Positive SST anomalies exceeding +0.5℃ were found in the seas between 150°E and 140°W, and between 110°W and 90°W.

In the North Pacific, SSTs were more than 1℃ above normal around 35°N, 160°E and around 40°N, 145°W. Negative SST anomalies exceeding –0.5℃ were found around 45°N, 170°E, around 40°N, 170°W and around 30°N, 165°W (Fig. 17).

Ten-day mean SST & Anomalies

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	22.3	-1.0
御前崎(47655)	13.7	-0.6
小名浜(47598)	8.4	-1.3
宮　古(47585)	7.2	0.6
江　差(47428)	8.2	0.7
浜　田(47755)	13.8	0.2

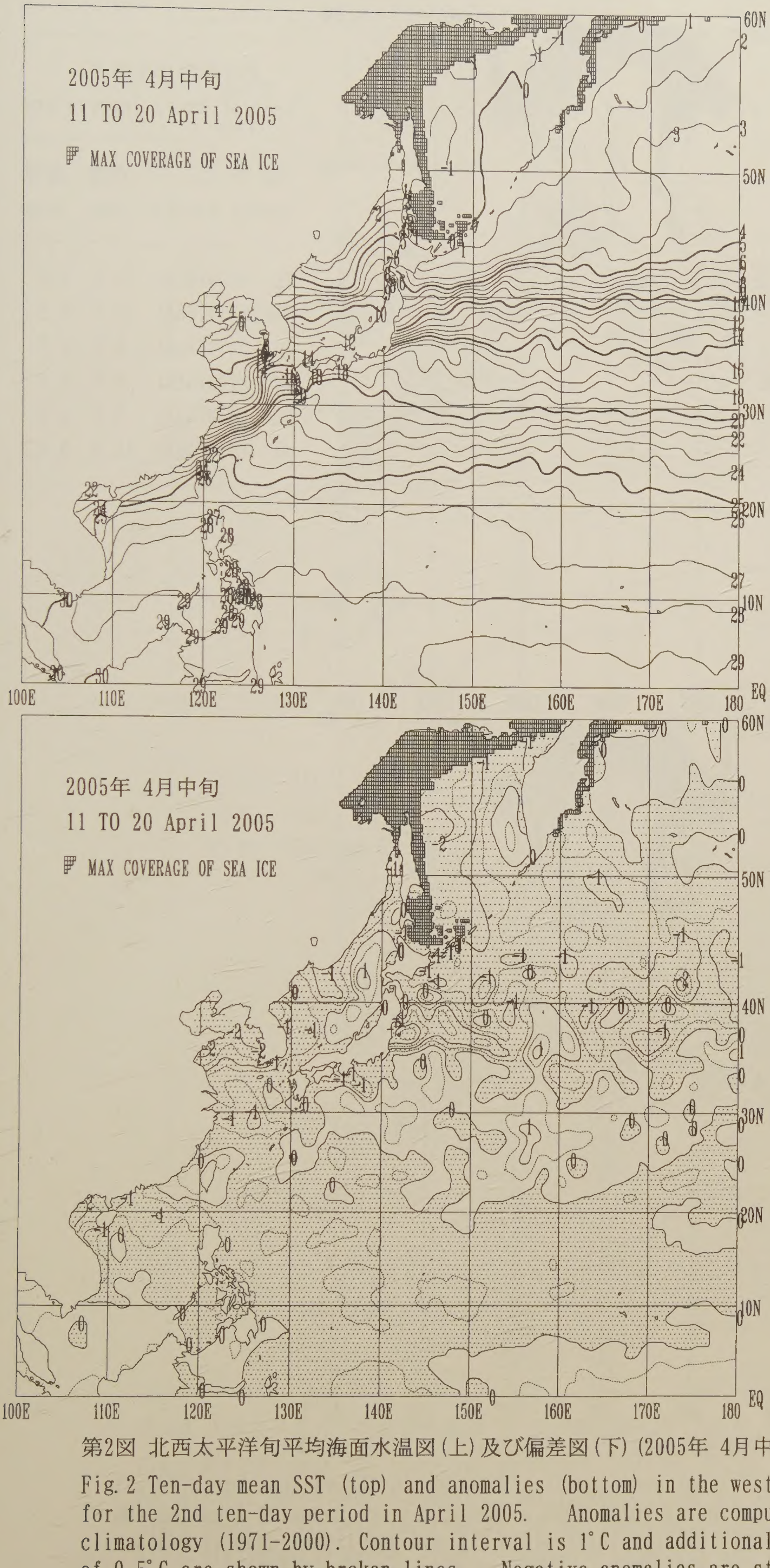
旬平均沿岸水温(℃) Coastal Water Temperature



第1図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(2005年 4月上旬)

Fig. 1 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 1st ten-day period in April 2005. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are stippled.

Ten-day mean SST & Anomalies



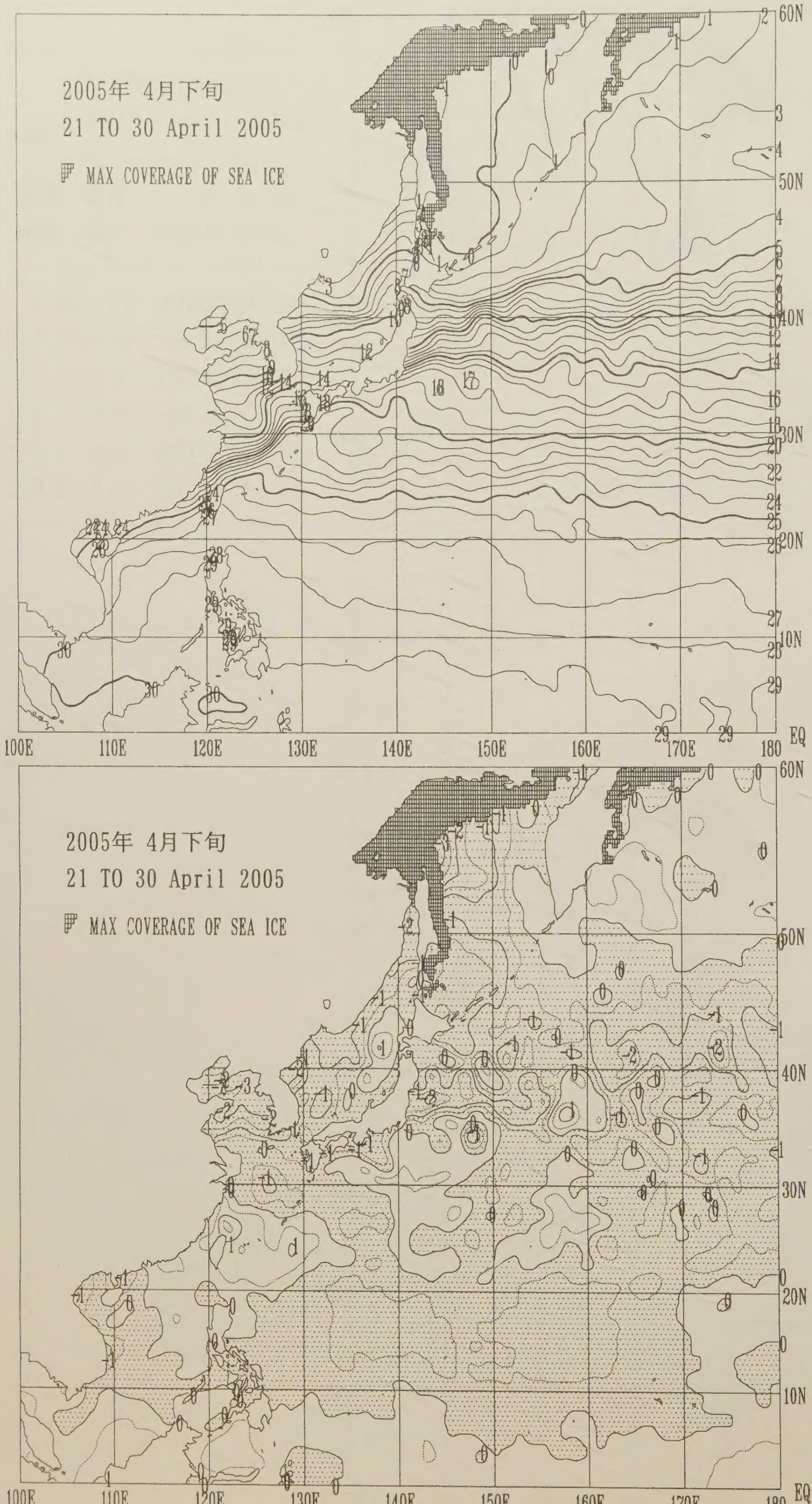
旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	23.8	-0.3
御前崎(47655)	15.3	-0.2
小名浜(47598)	9.1	-1.7
宮　古(47585)	8.3	1.2
江　差(47428)	9.4	1.1
浜　田(47755)	14.9	0.6

第2図 北西太平洋旬平均海面水温図(上)及び偏差図(下) (2005年 4月中旬)

Fig. 2 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 2nd ten-day period in April 2005. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are stippled.

Ten-day mean SST & Anomalies

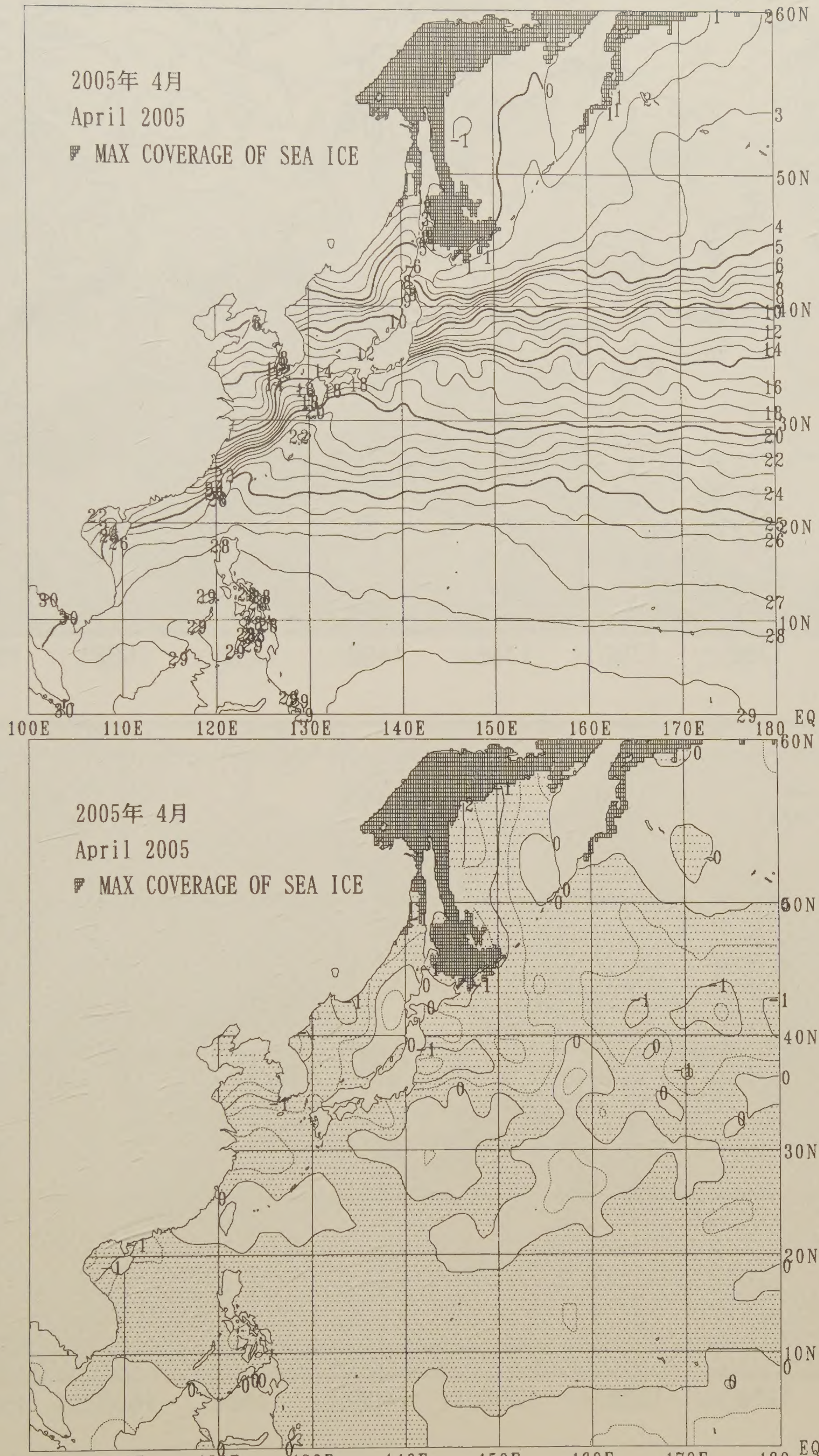


旬平均沿岸水温(℃)
Coastal Water Temperature

地 点 名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	24.9	0.0
御前崎(47655)	16.2	-0.2
小名浜(47598)	9.9	-1.7
宮　古(47585)	8.9	1.2
江　差(47428)	9.9	0.6
浜　田(47755)	15.9	0.4

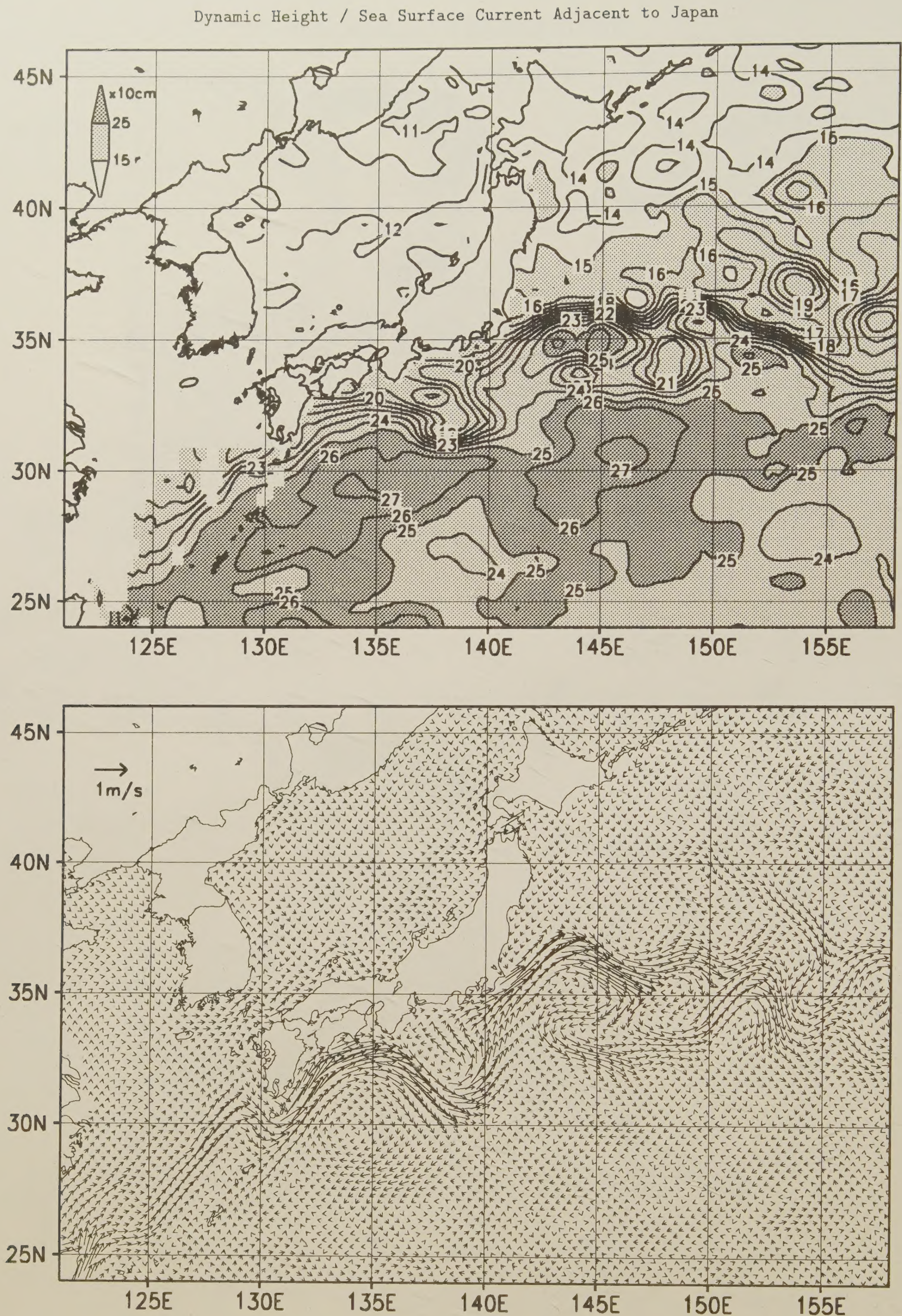
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Fig. 3 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 3rd ten-day period in April 2005. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are stippled.



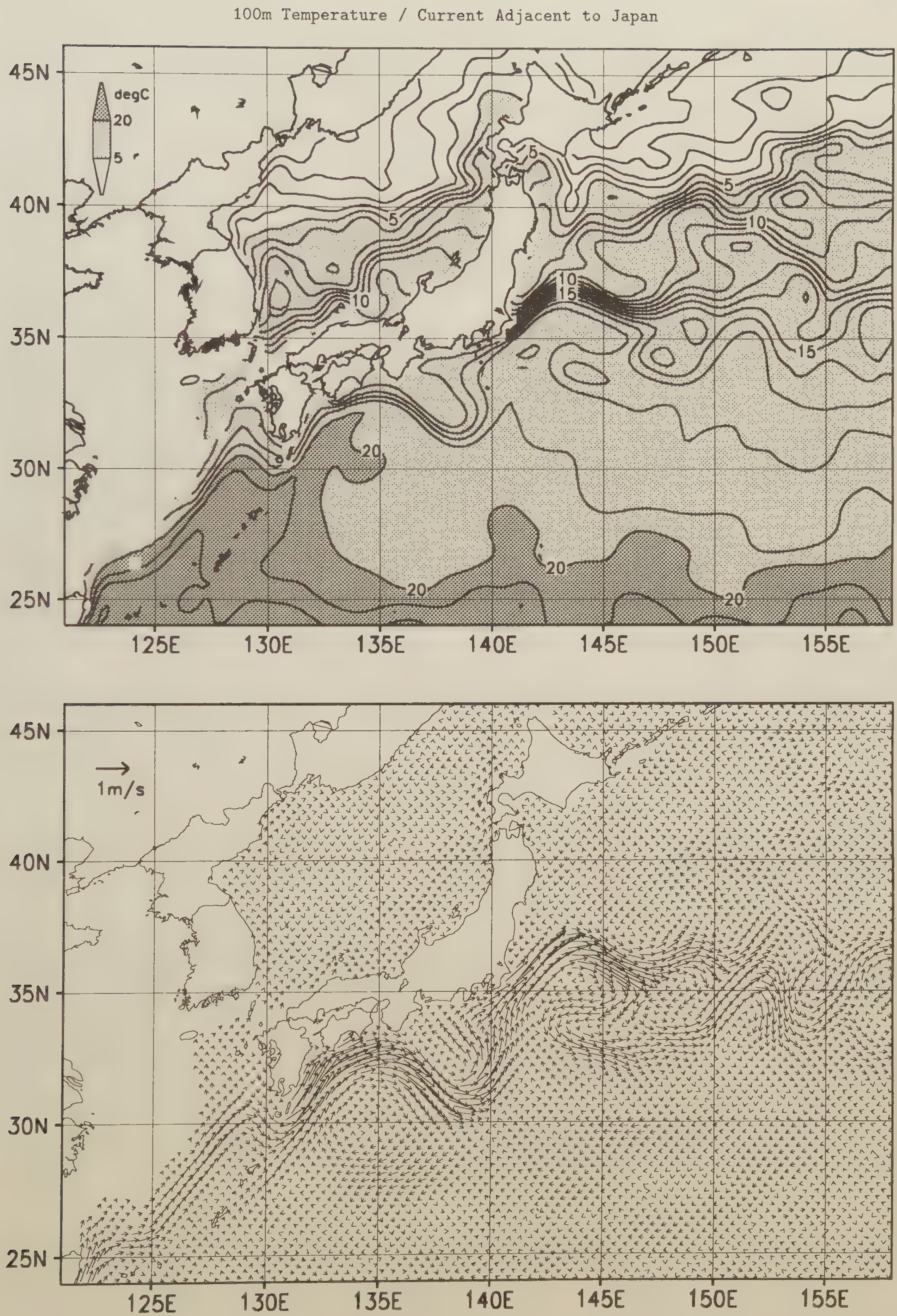
第4図 北西太平洋月平均海面水温図(上)及び偏差図(下) (2005年 4月)

Fig. 4 Monthly mean SST (top) and anomalies (bottom) in the western North Pacific for April 2005. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are stippled.



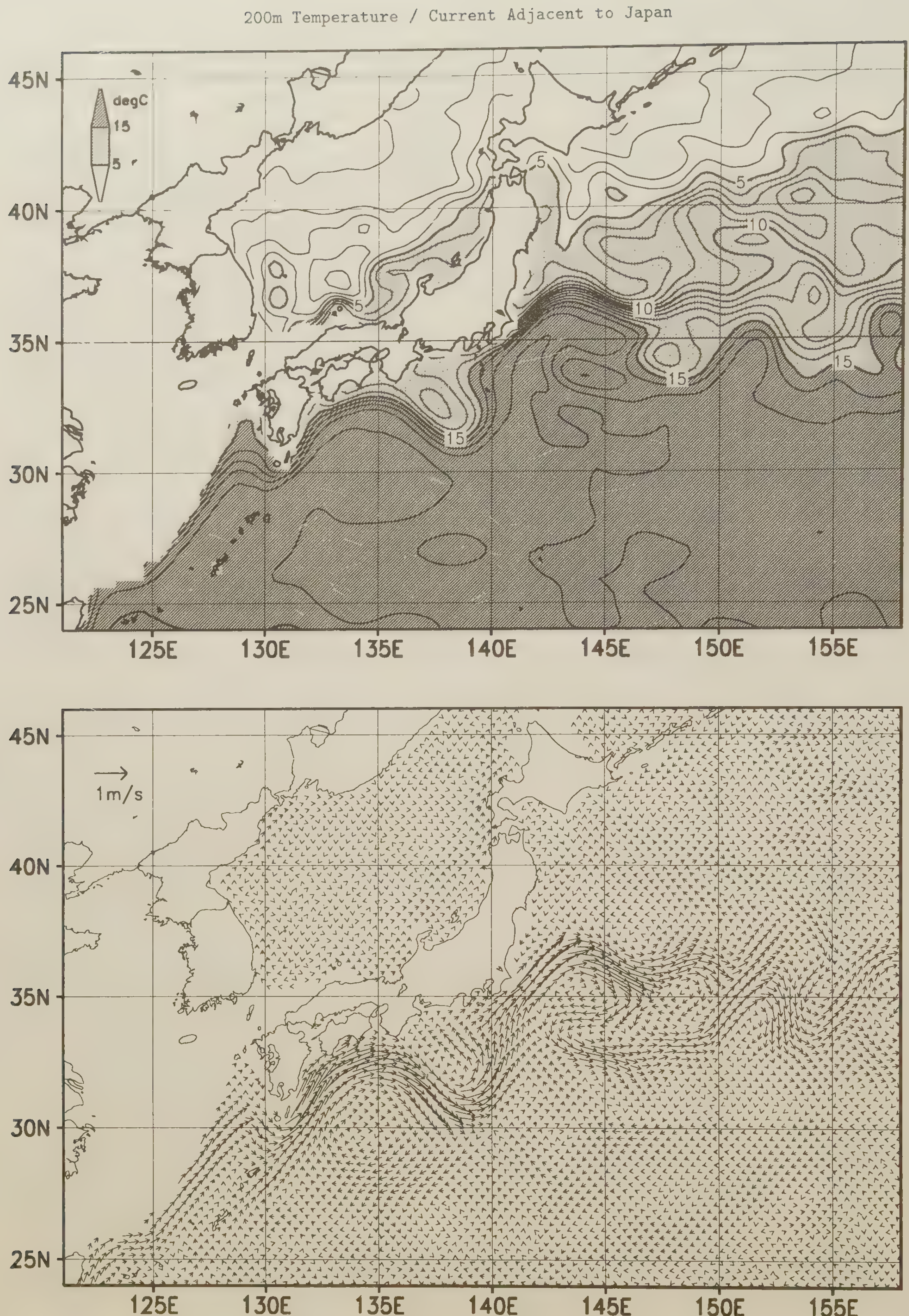
第 5 図　日本近海月平均海面高度分布図 (上) と海面海流図 (下) (2005 年 4 月)
　　　　(海洋総合解析システムによる)

Fig. 5　Monthly mean sea surface height (top) and current (bottom) in seas adjacent to Japan for April 2005. Contour interval is 10cm (top). (calculated by the Ocean Comprehensive Analysis System)



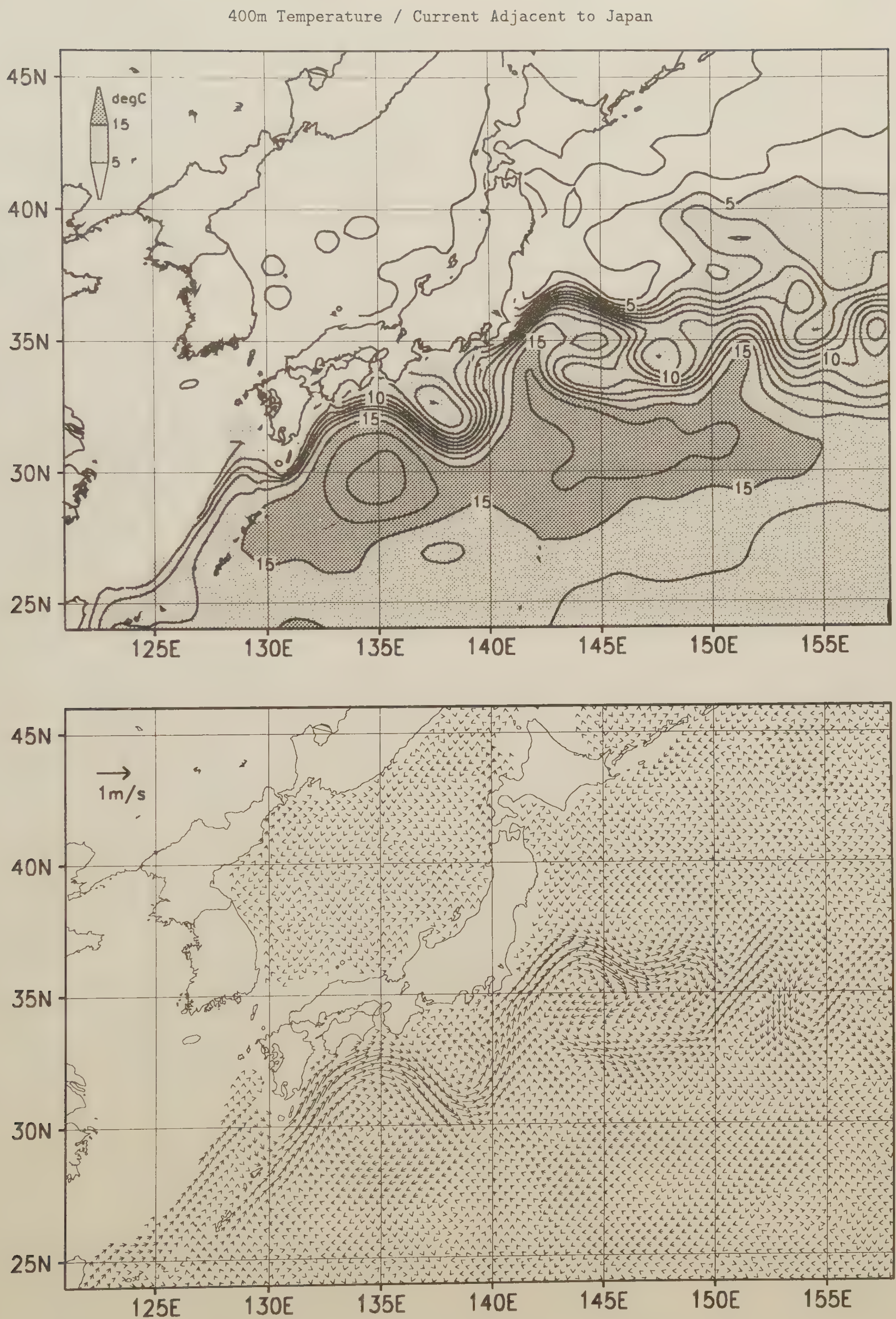
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（海洋総合解析システムによる）

Fig. 6　Monthly mean subsurface (100 m) temperature (top) and current (bottom) in seas adjacent to Japan for April 2005. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)



第 7 図　日本近海月平均表層水温図（上）と表層海流図（下）（深さ 200 m）（2005 年 4 月）
（海洋総合解析システムによる）

Fig. 7　Monthly mean subsurface (200 m) temperature (top) and current (bottom) in seas adjacent to Japan for April 2005. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)



第 8 図　日本近海月平均表層水温図（上）と表層海流図（下）（深さ 400 m）(2005 年 4 月)
（海洋総合解析システムによる）

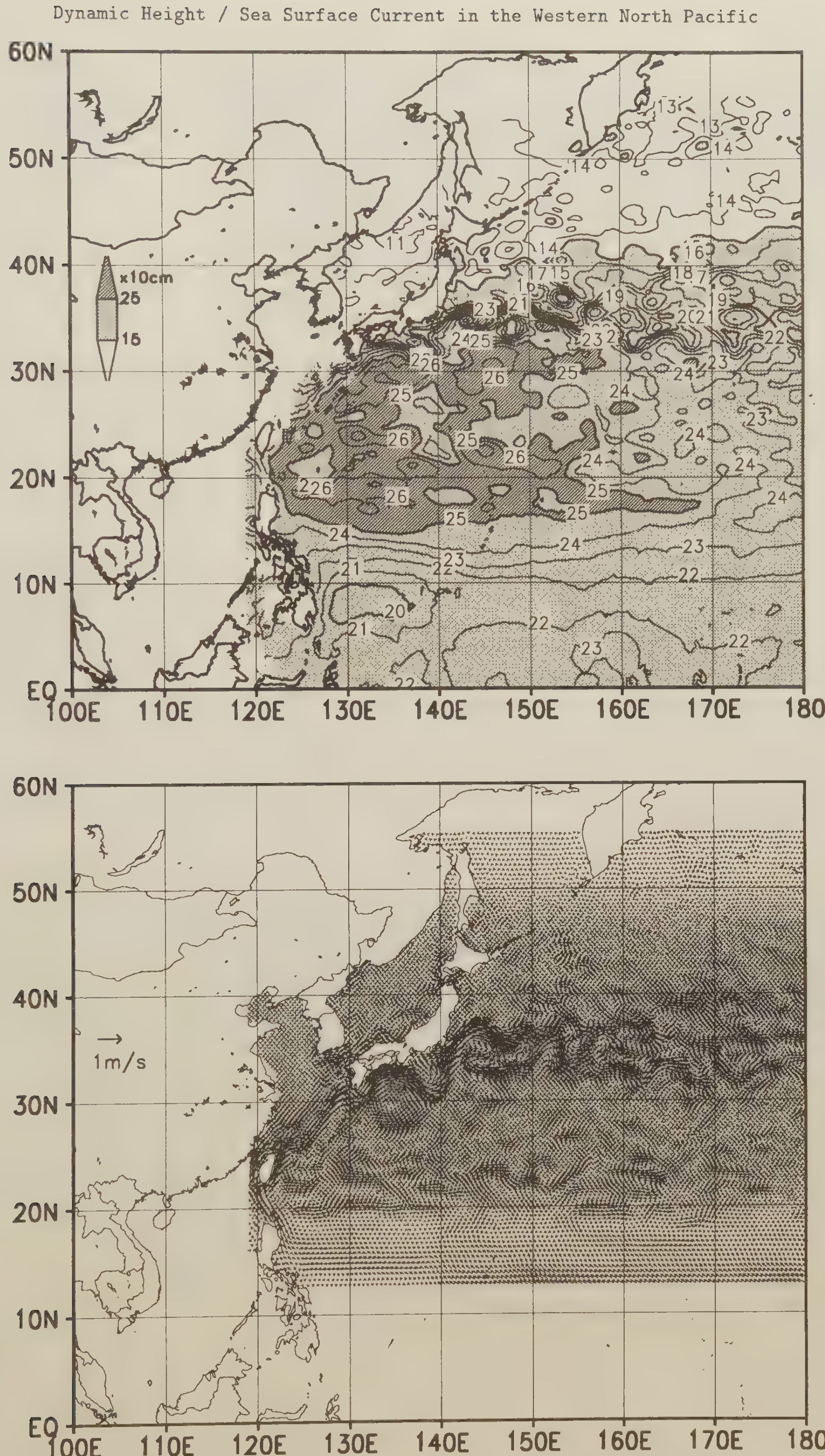
Fig. 8　Monthly mean subsurface (400 m) temperature (top) and current (bottom) in seas adjacent to Japan for April 2005. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)

Location of the Kuroshio axis



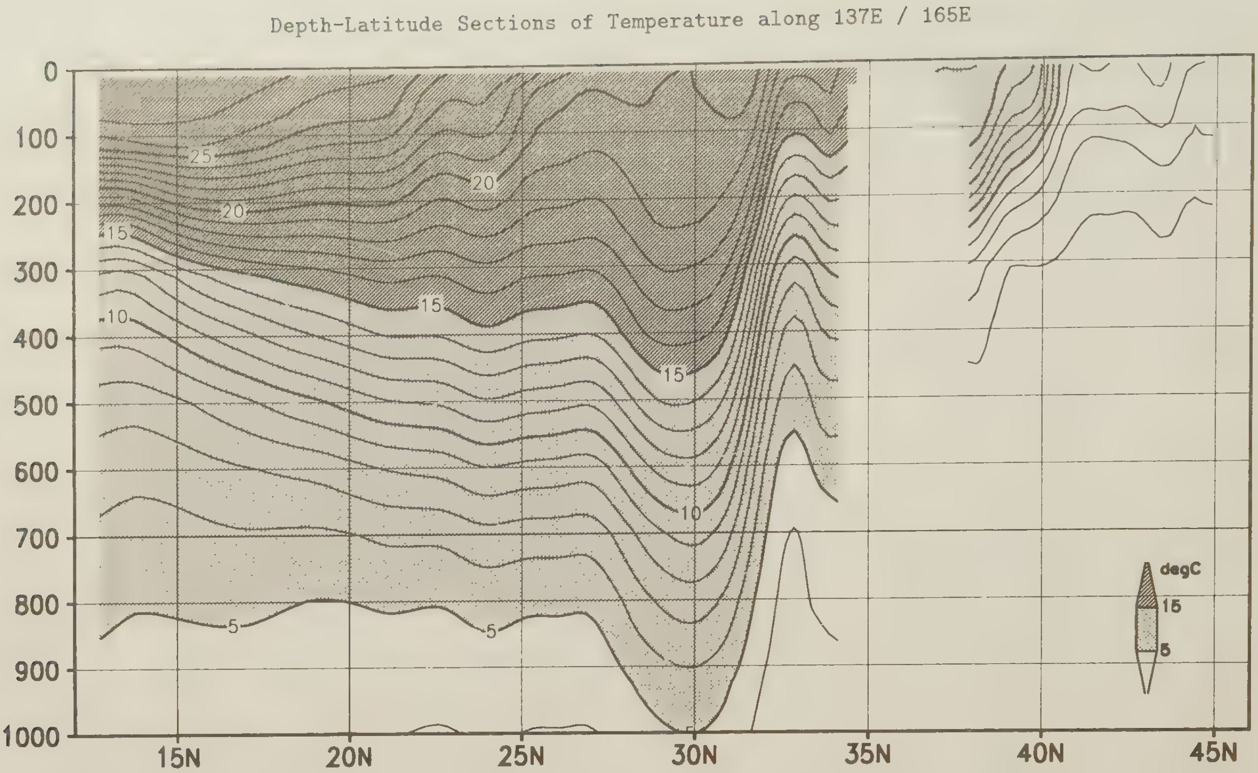
第9図 旬別黒潮流軸図

Fig. 9 Location of the Kuroshio axis



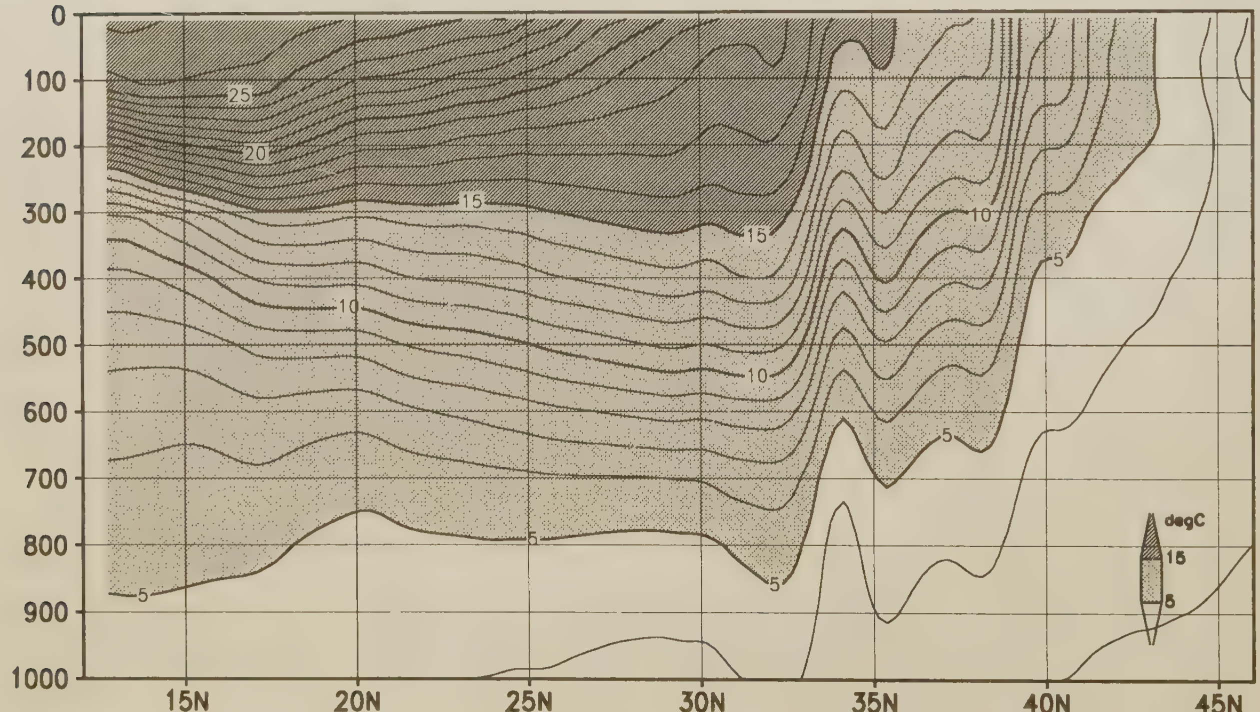
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（海洋総合解析システムによる）

Fig. 10　Monthly mean sea surface height (top) and current (bottom) in the western North Pacific for April 2005. Contour interval is 10cm (top). (calculated by the Ocean Comprehensive Analysis System)



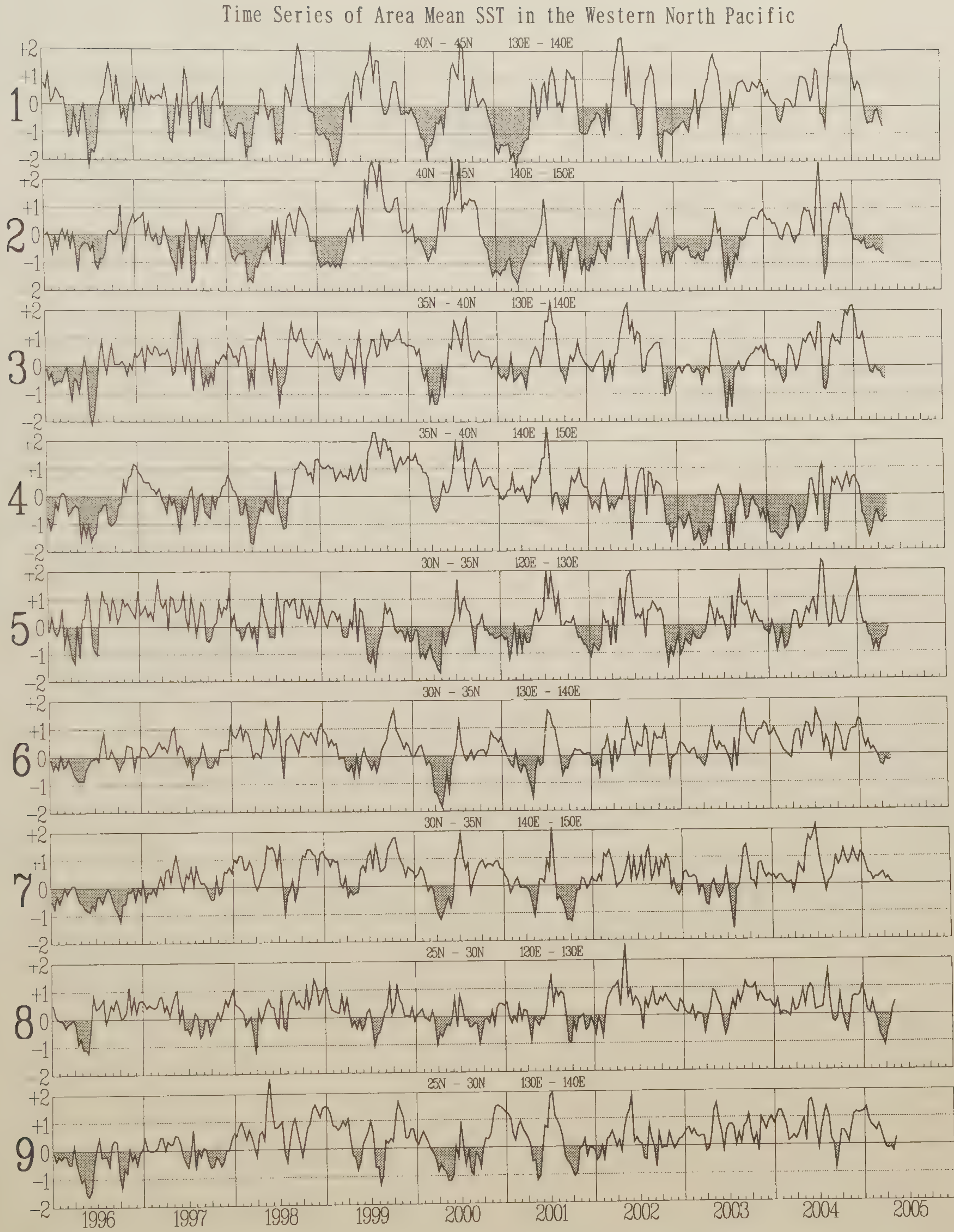
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Fig. 11　Vertical cross section of monthly mean temperature along 137 °E for April 2005. Contour interval is 1 °C. (calculated by the Ocean Comprehensive Analysis System)



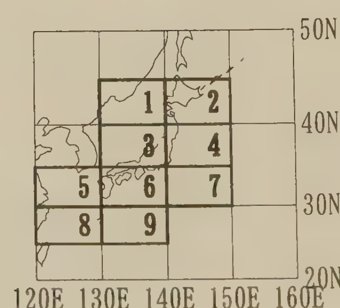
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（海洋総合解析システムによる）

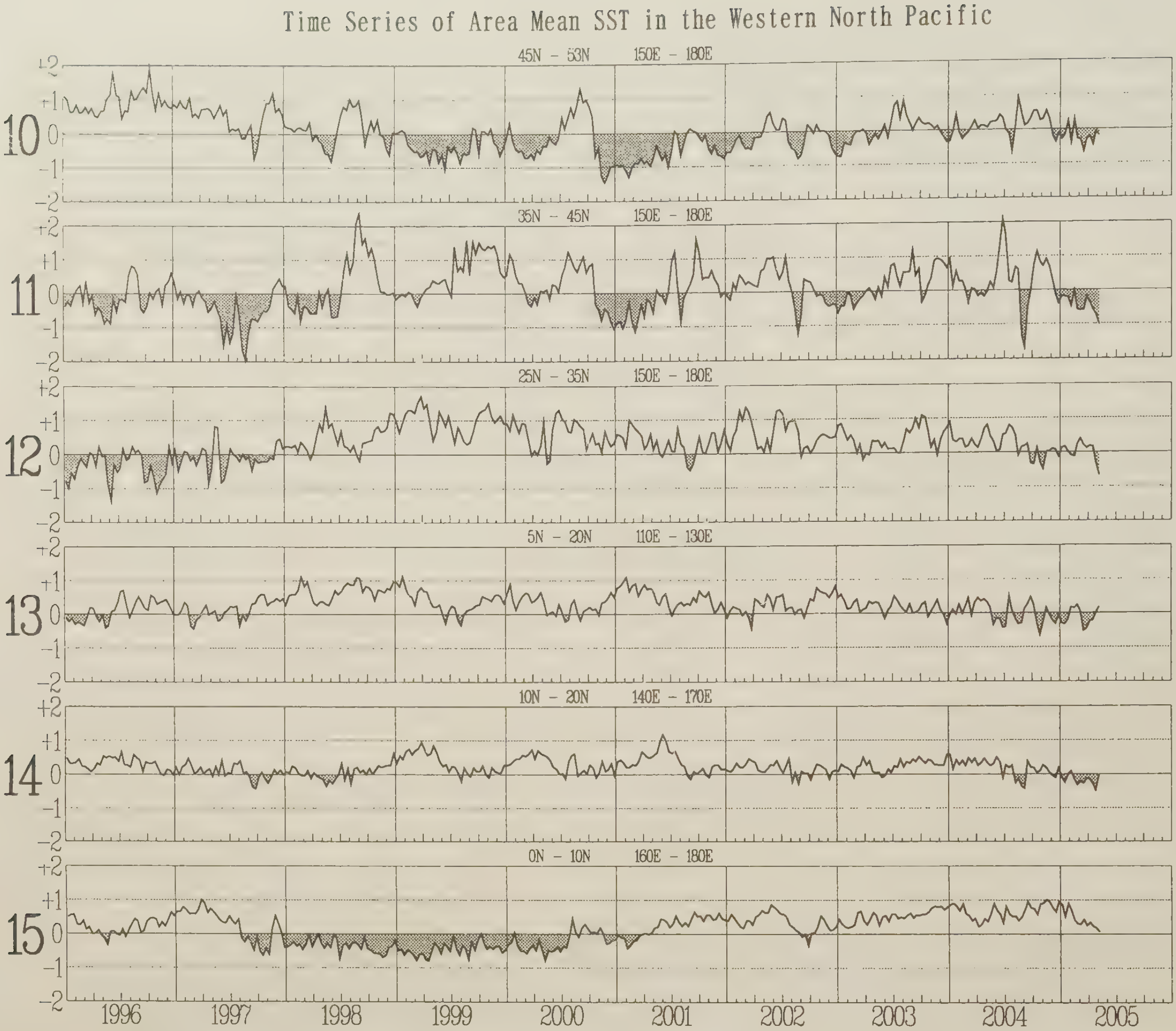
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第13図　海域別旬平均海面水温平年偏差時系列図

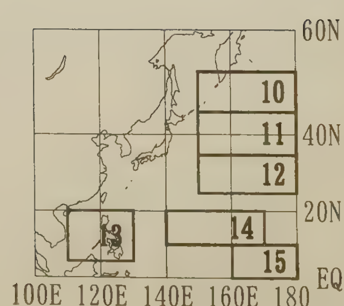
Fig. 13 Time series of the ten-day mean SST anomalies (°C) averaged for the sub-areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1971-2000).

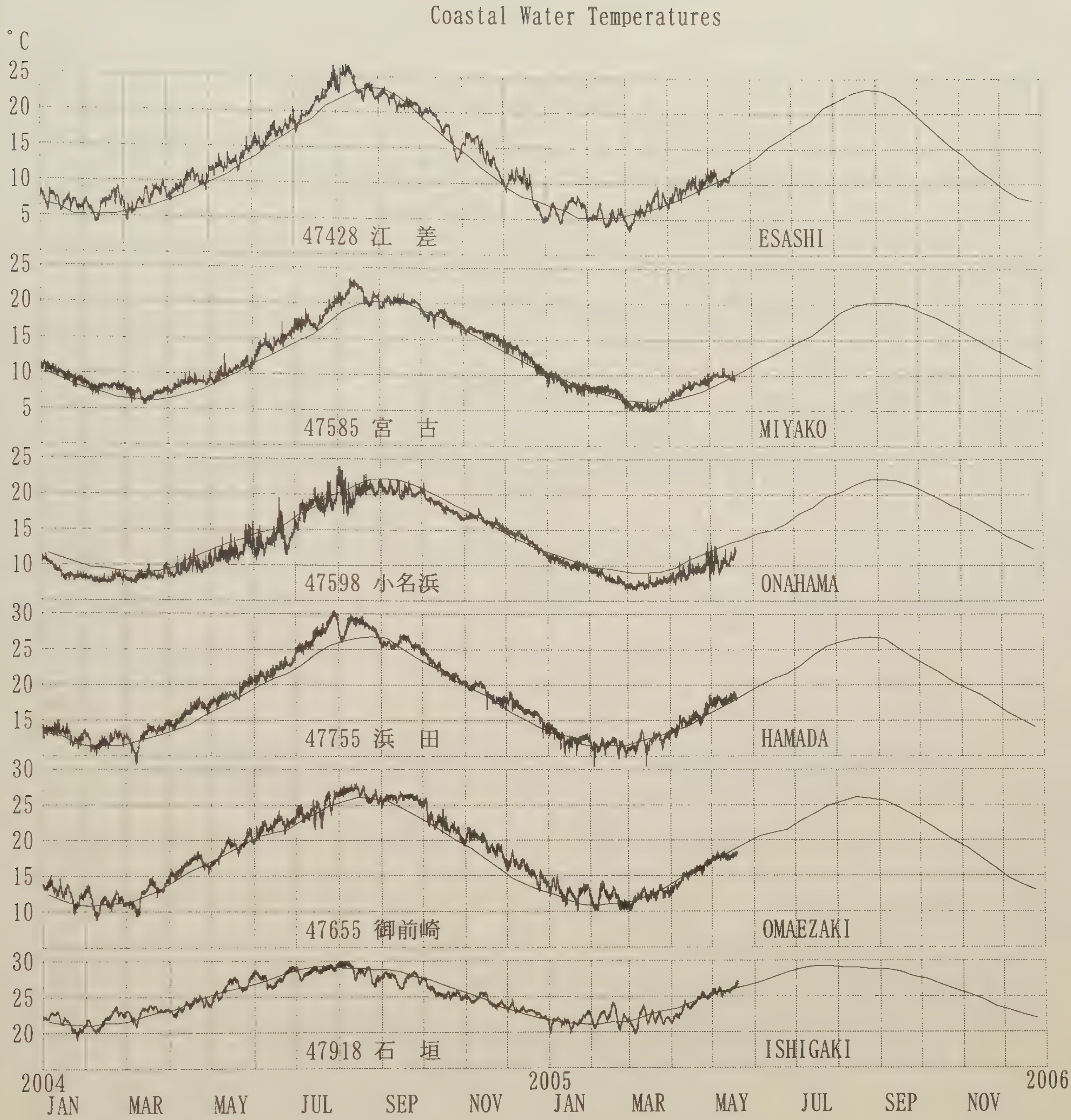




第13図　海域別旬平均海面水温平年偏差時系列図（つづき）

Fig. 13 (continued) Time series of the ten-day mean SST anomalies (°C) averaged for the sub-areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1971-2000).



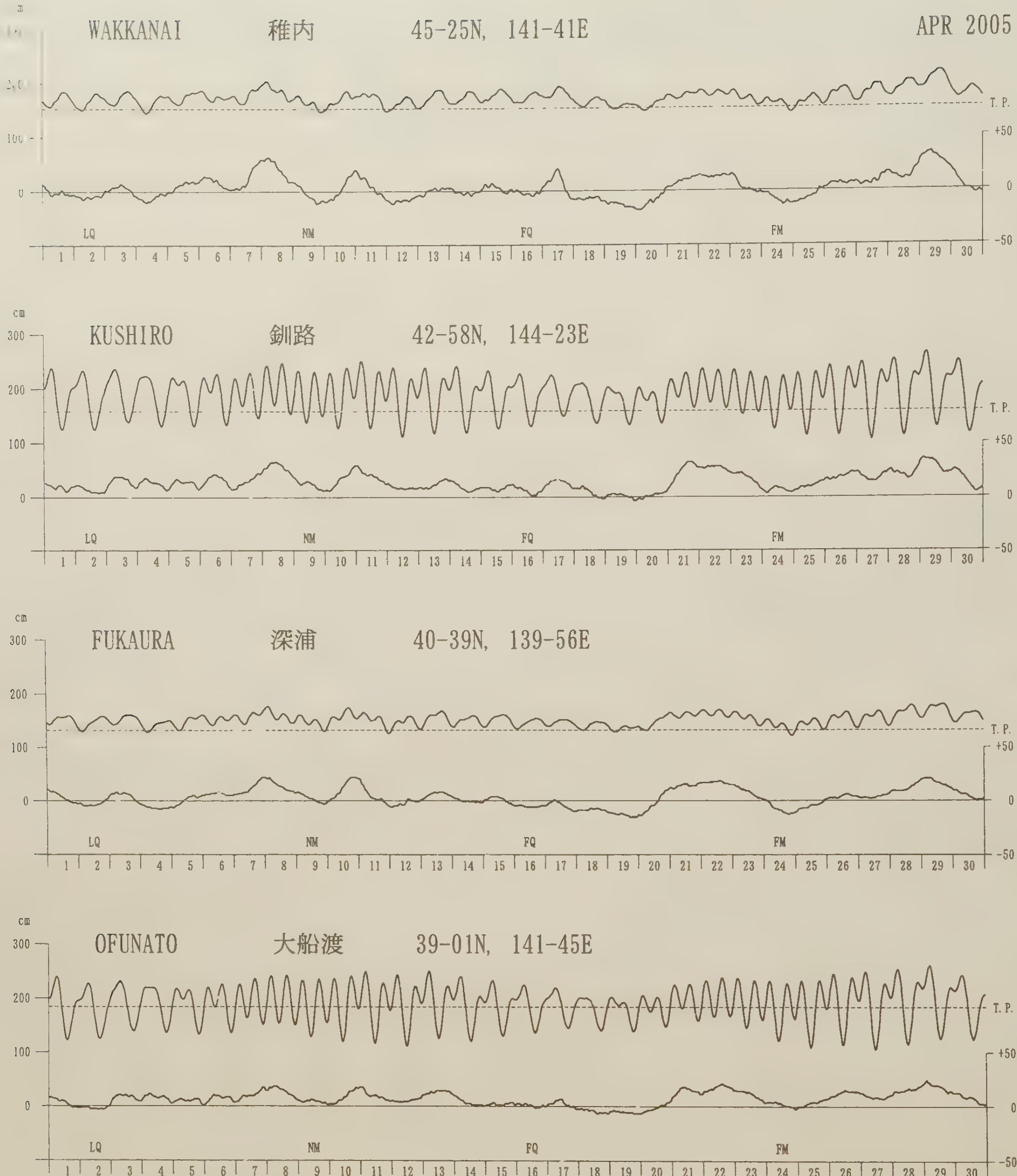


第14図 沿岸水温時系列図

Fig. 14 Time series of hourly coastal water temperatures (°C) measured at 6 coastal stations of the JMA shown in the right panel.

Thin lines show ten-day mean climatology.





第15図 沿岸潮位時系列図（2005年 4月）

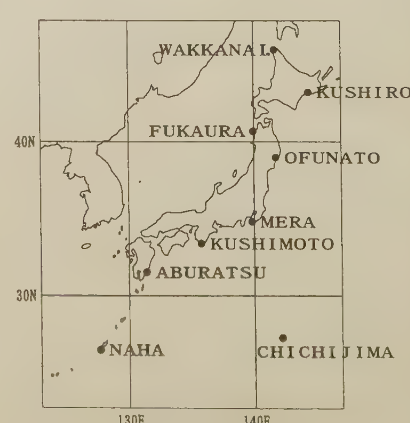
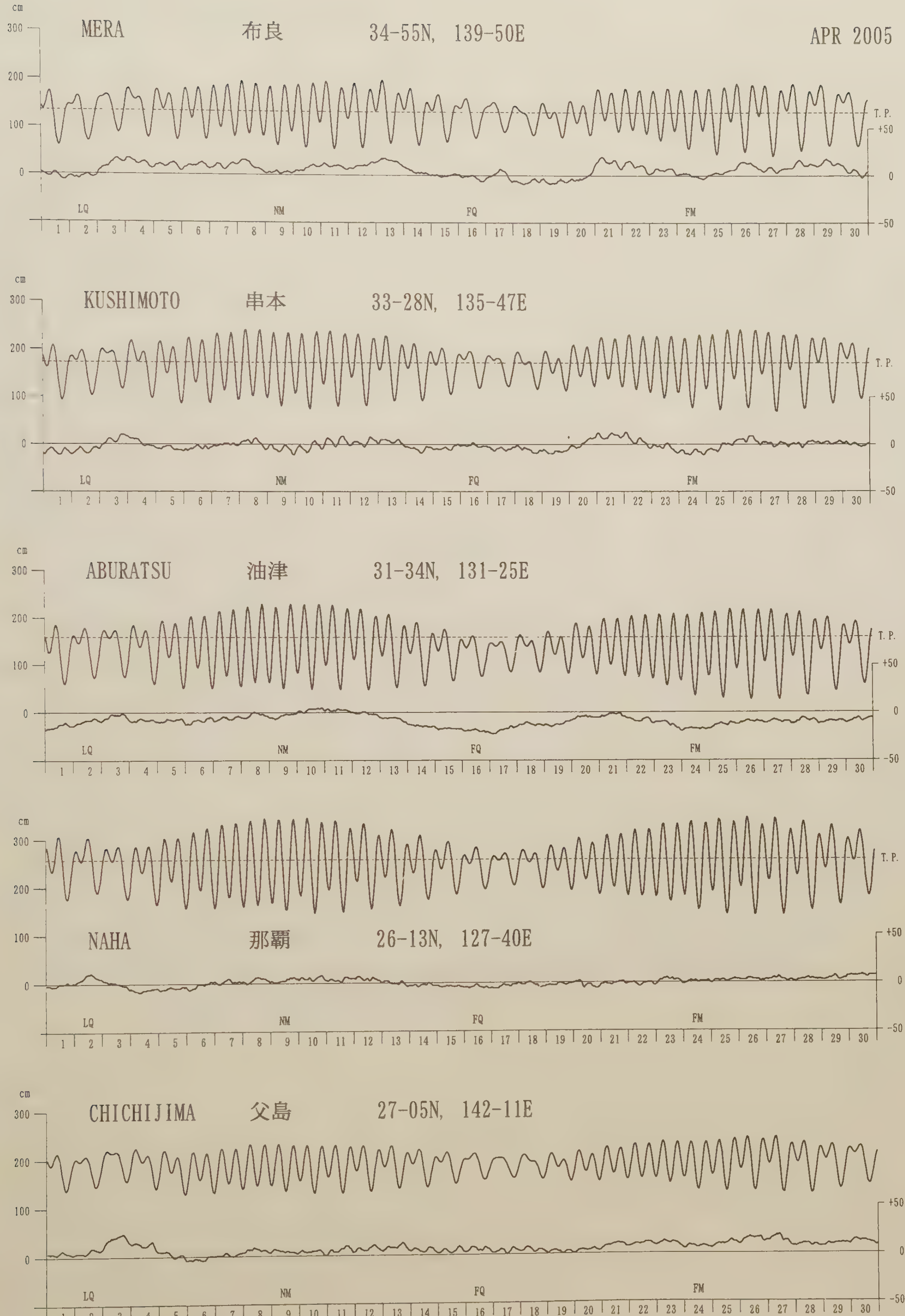


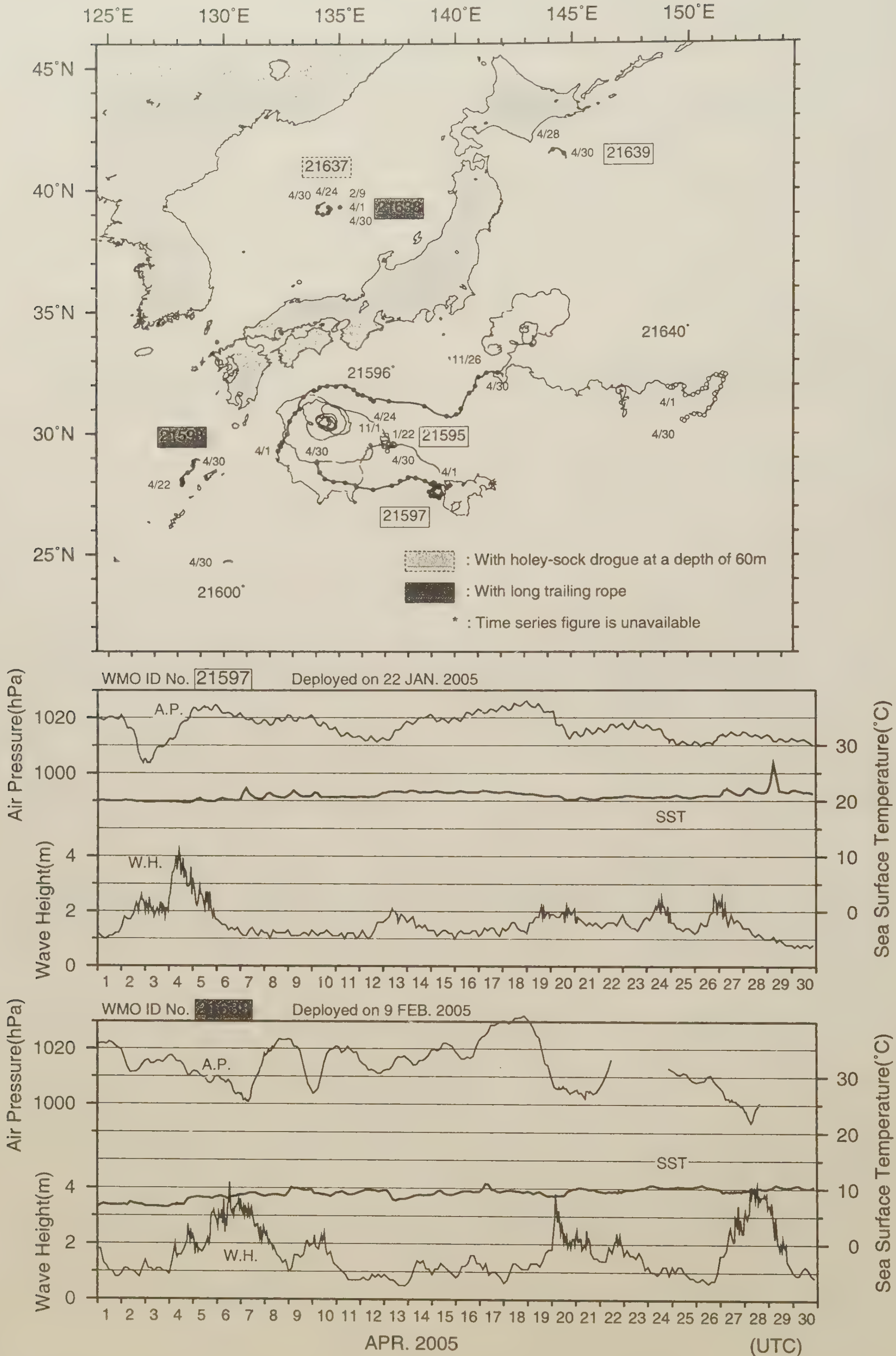
Fig. 15 Time series of hourly sea level observation (upper line) and its anomalies (lower line) at 9 stations of the JMA in the right panel.
Short term variations are filtered out from raw data.

NM: new moon, FQ: first quarter
FM: full moon, LQ: last quarter
T. P. : Mean sea level of Tokyo Bay (Tokyo Peil)



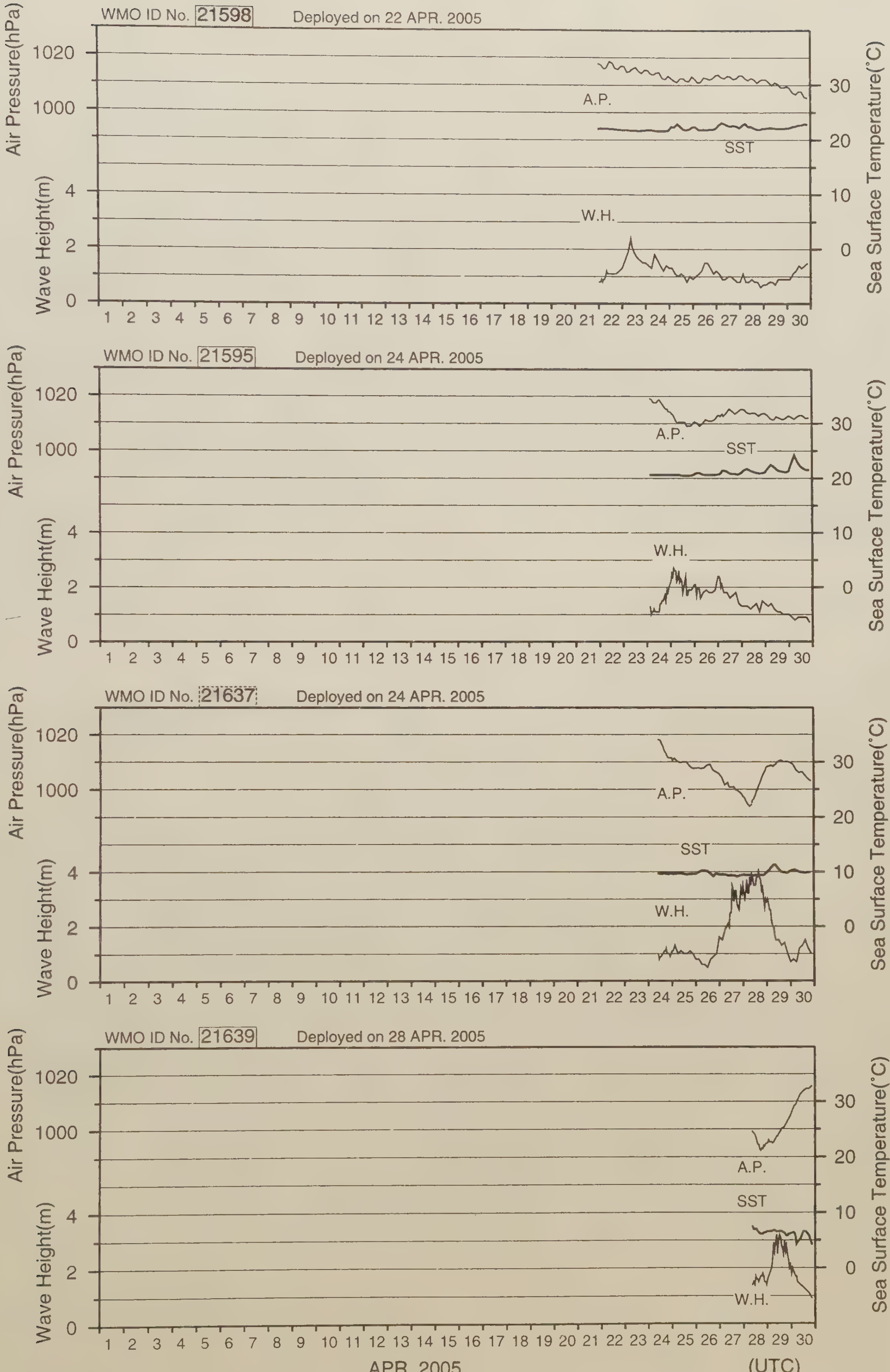
第15図 つづき

Fig. 15 (continued)



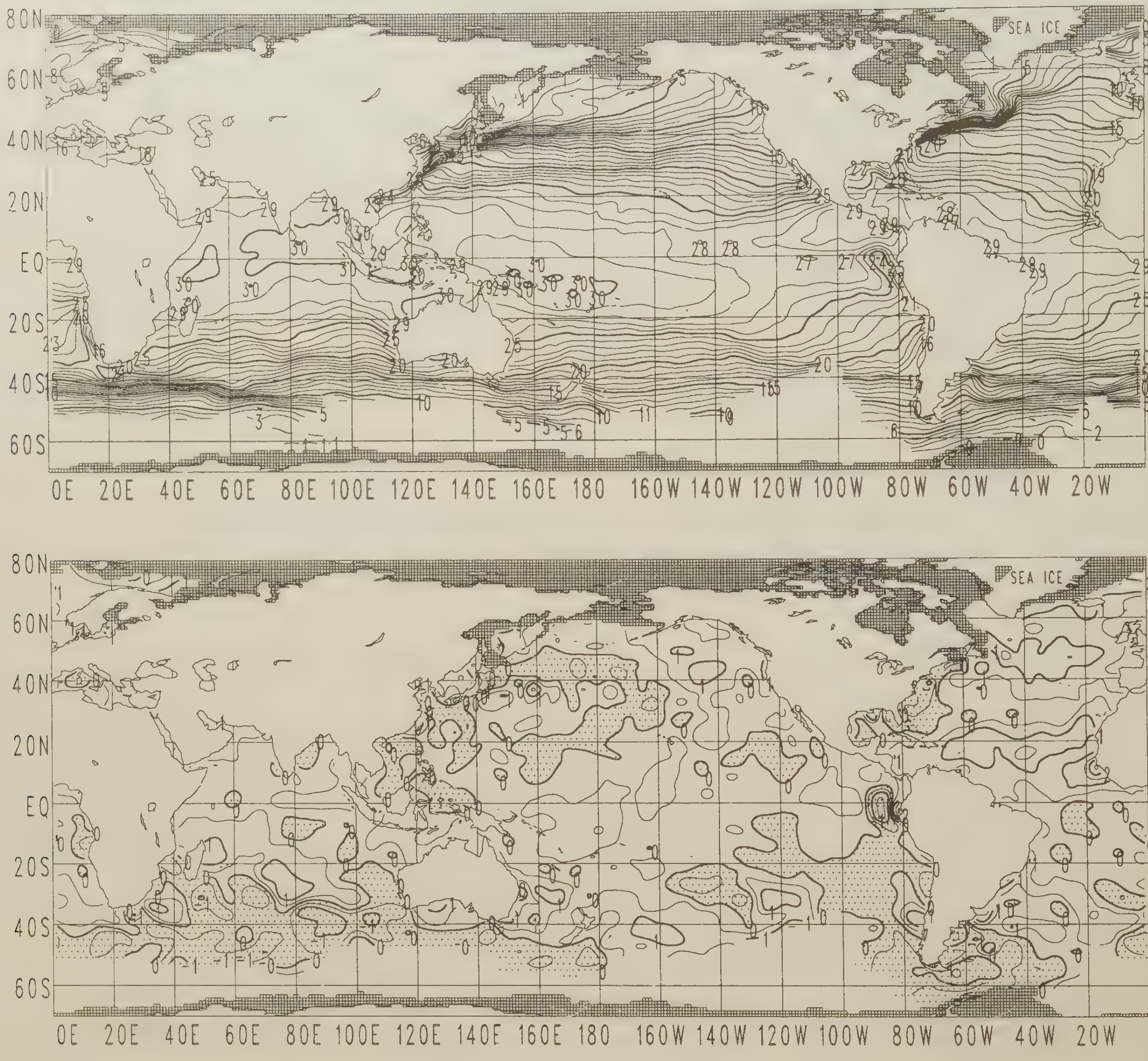
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Fig.16　Time series of JMA drifting buoy observation.
The upper panel shows paths of the buoys. Circles denote the position at 00h UTC everyday.
The lower panel shows time series of observation data.



第16図 つづき
Fig.16 (continued)

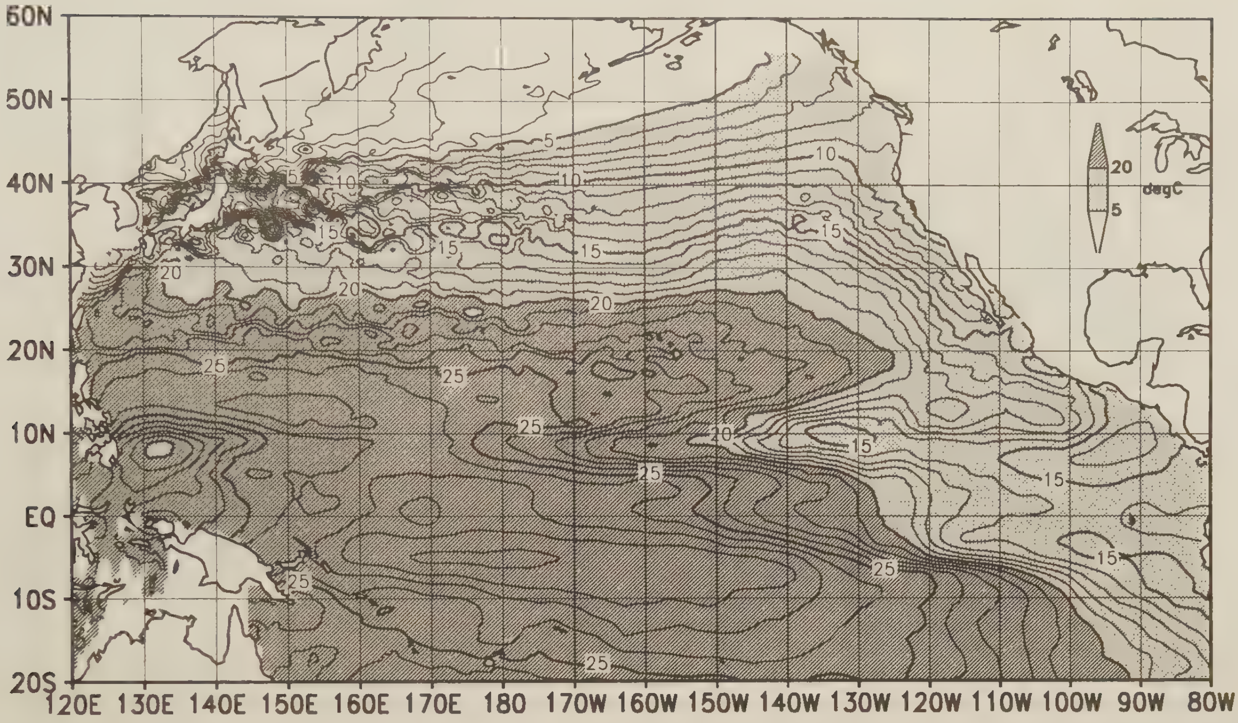
SST & Anomalies in the Global Ocean



第17図　全球月平均海面水温図（上）及び偏差図（下）（2005年 4月）

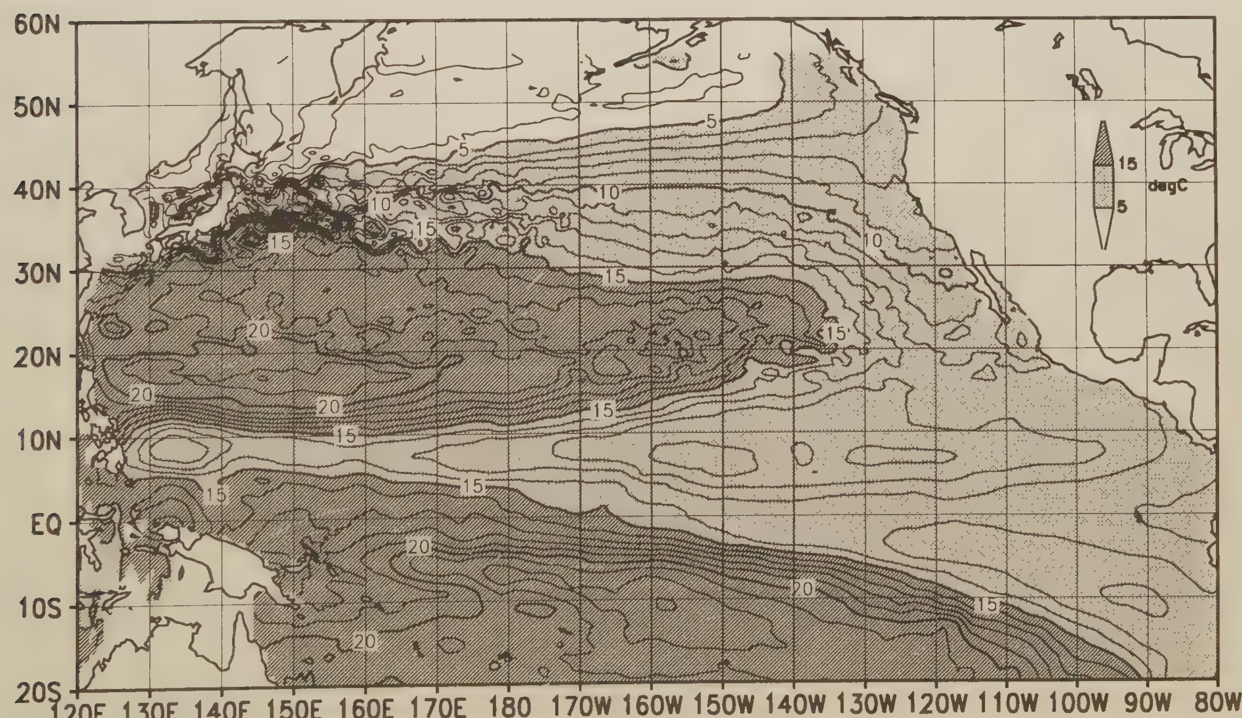
Fig. 17 Monthly mean SST over the global ocean (top) and anomalies (bottom) for April 2005. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of ±0.5°C are shown by thin lines. Negative anomalies are stippled. Maximum coverage of sea ice is shaded. Data sources for sea ice are U.S. National Ice Center (polar regions) and JMA (the Sea of Okhotsk).

100m / 200m Temperature in the Pacific Ocean



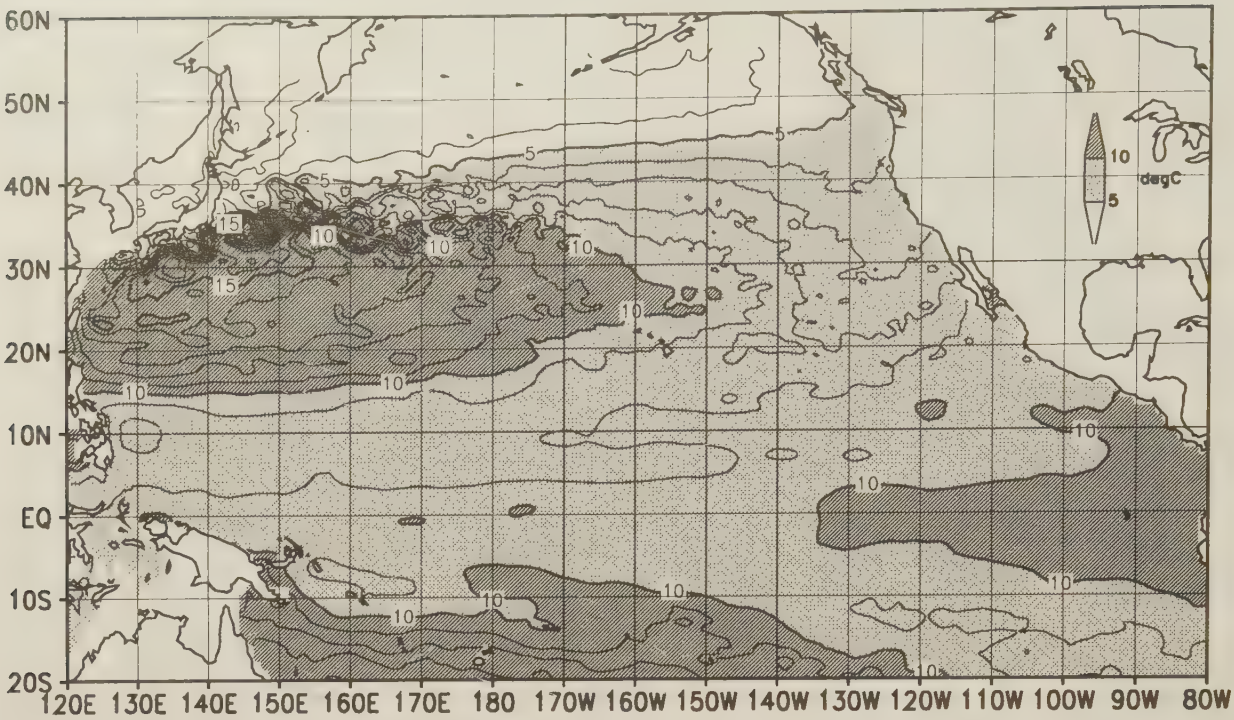
第 18 図　太平洋月平均表層水温図（深さ 100 m）　（2005 年 4 月）
（海洋総合解析システムによる）

Fig. 18　Monthly mean subsurface (100 m) temperature in the Pacific Ocean for April 2005. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



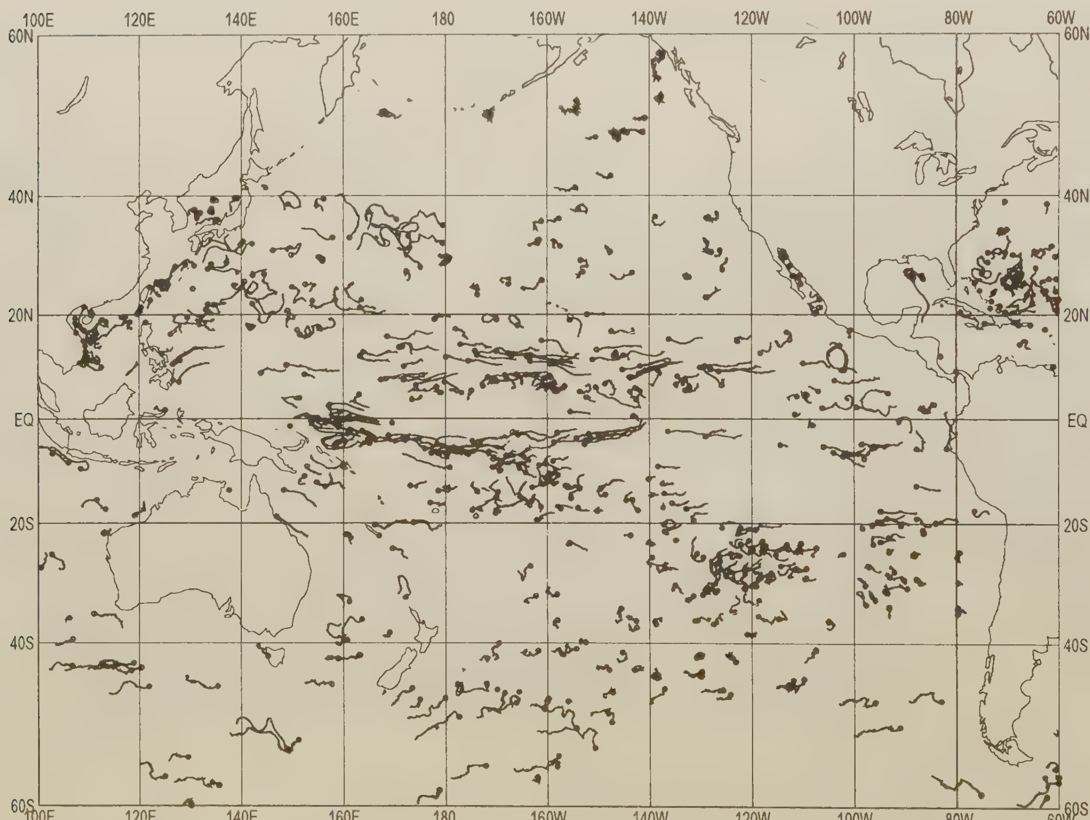
第 19 図　太平洋月平均表層水温図（深さ 200 m）　（2005 年 4 月）
（海洋総合解析システムによる）

Fig. 19　Monthly mean subsurface (200 m) temperature in the Pacific Ocean for April 2005. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



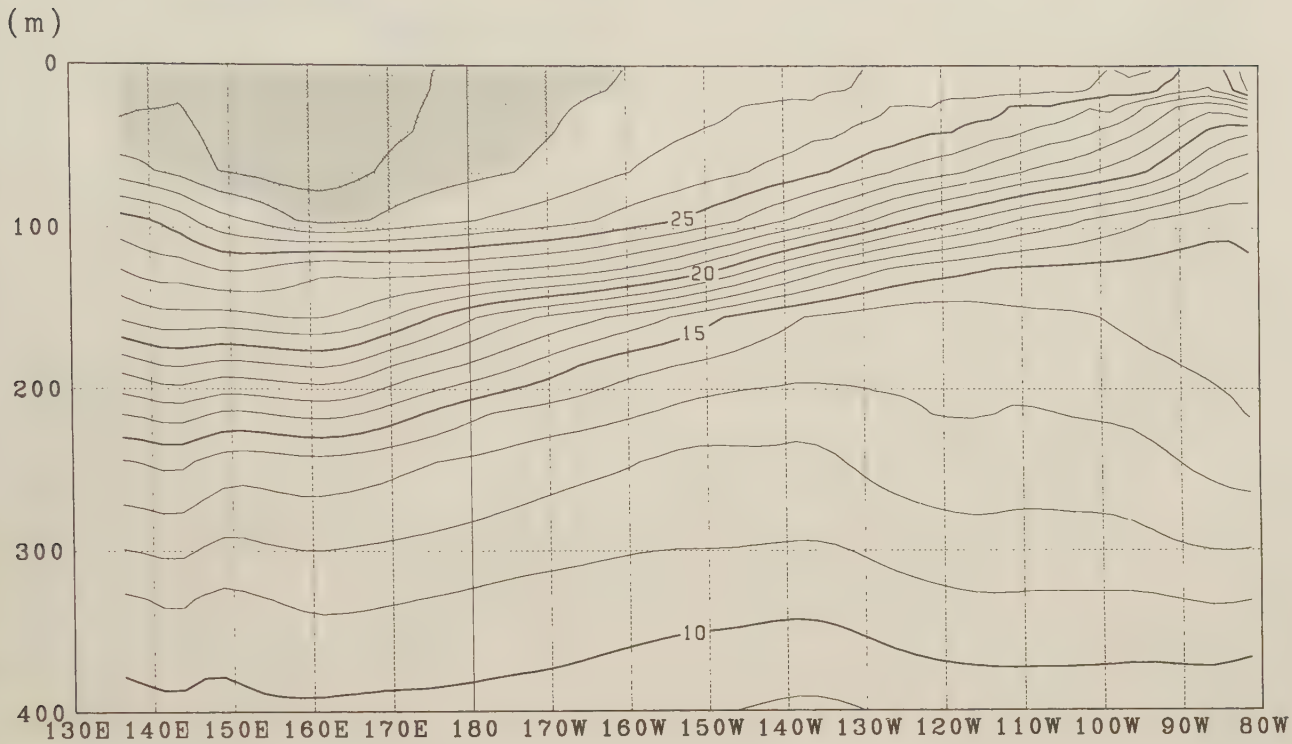
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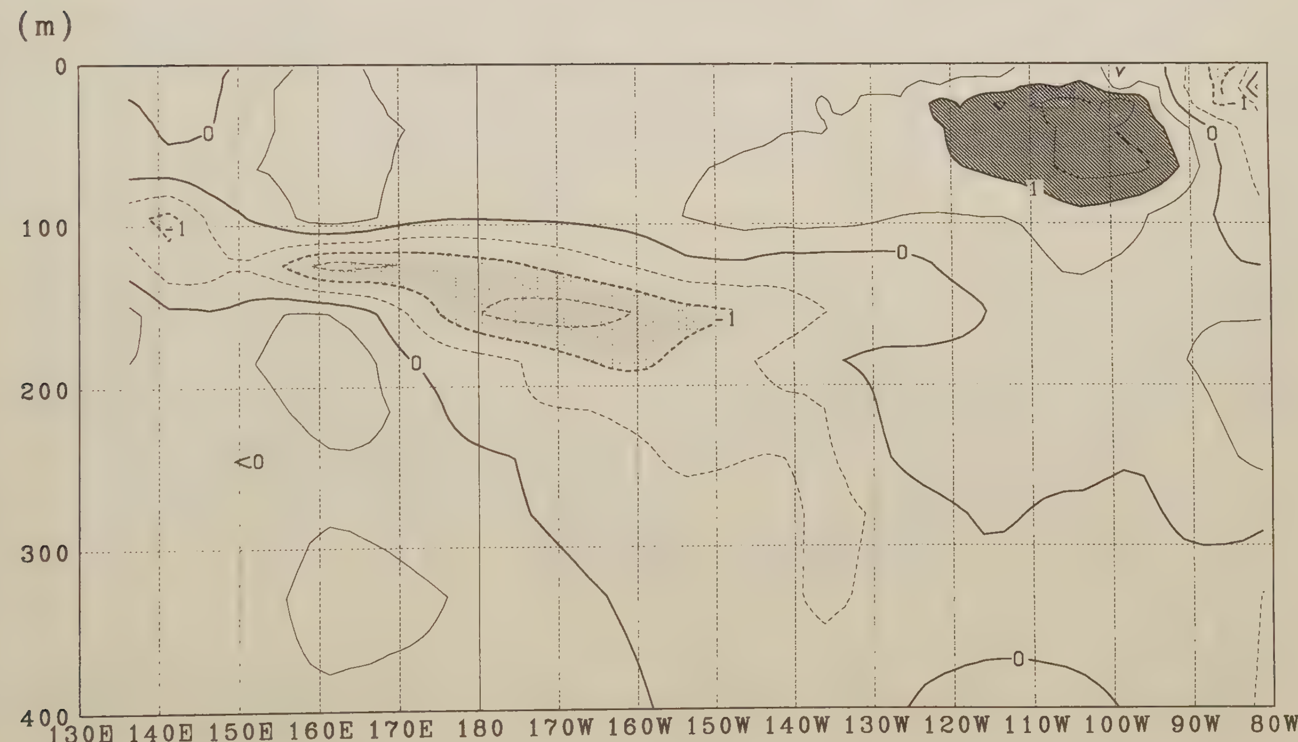
Fig. 20　Monthly mean subsurface (400 m) temperature in the Pacific Ocean for April 2005. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



第 21 図　太平洋ブイ流跡図（2005 年 4 月）

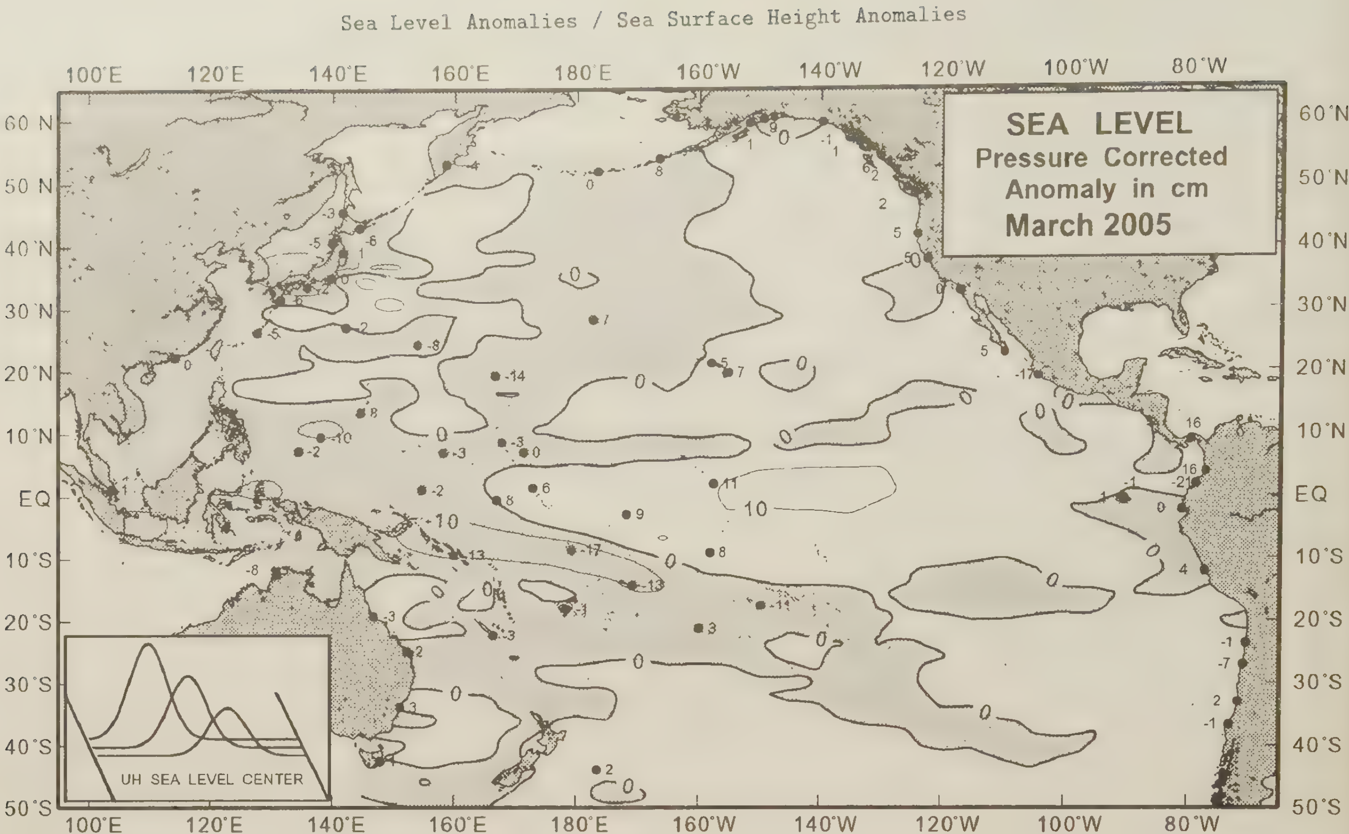
Fig. 21　Trajectories of drifting buoys in the Pacific Ocean during April 2005. Each track is for one buoy. Small circles represent the last positions for the month.





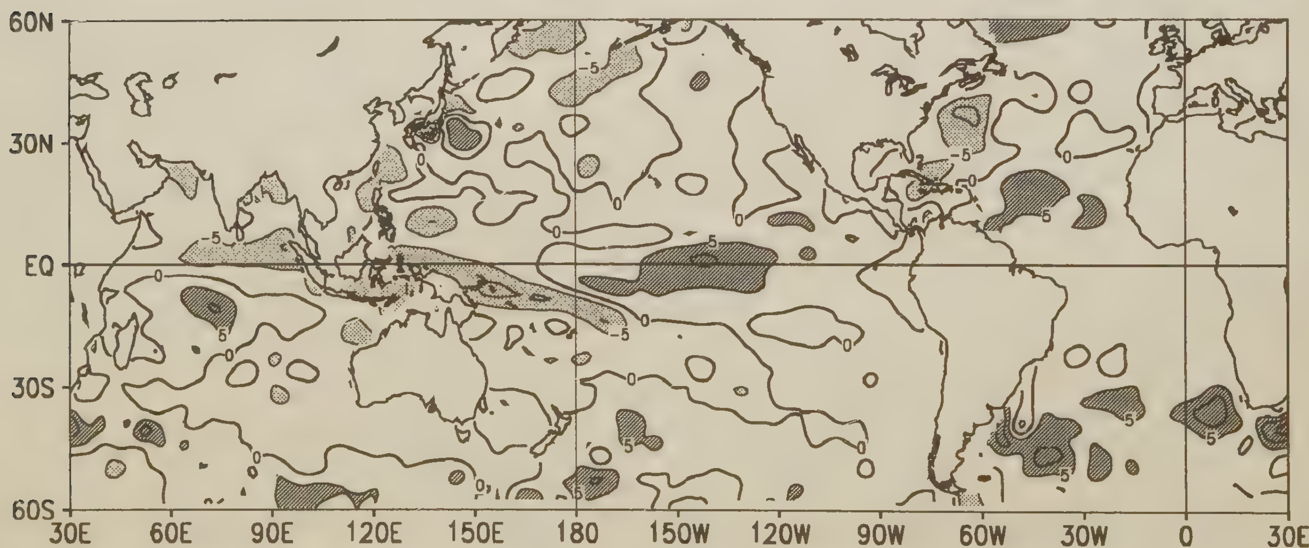
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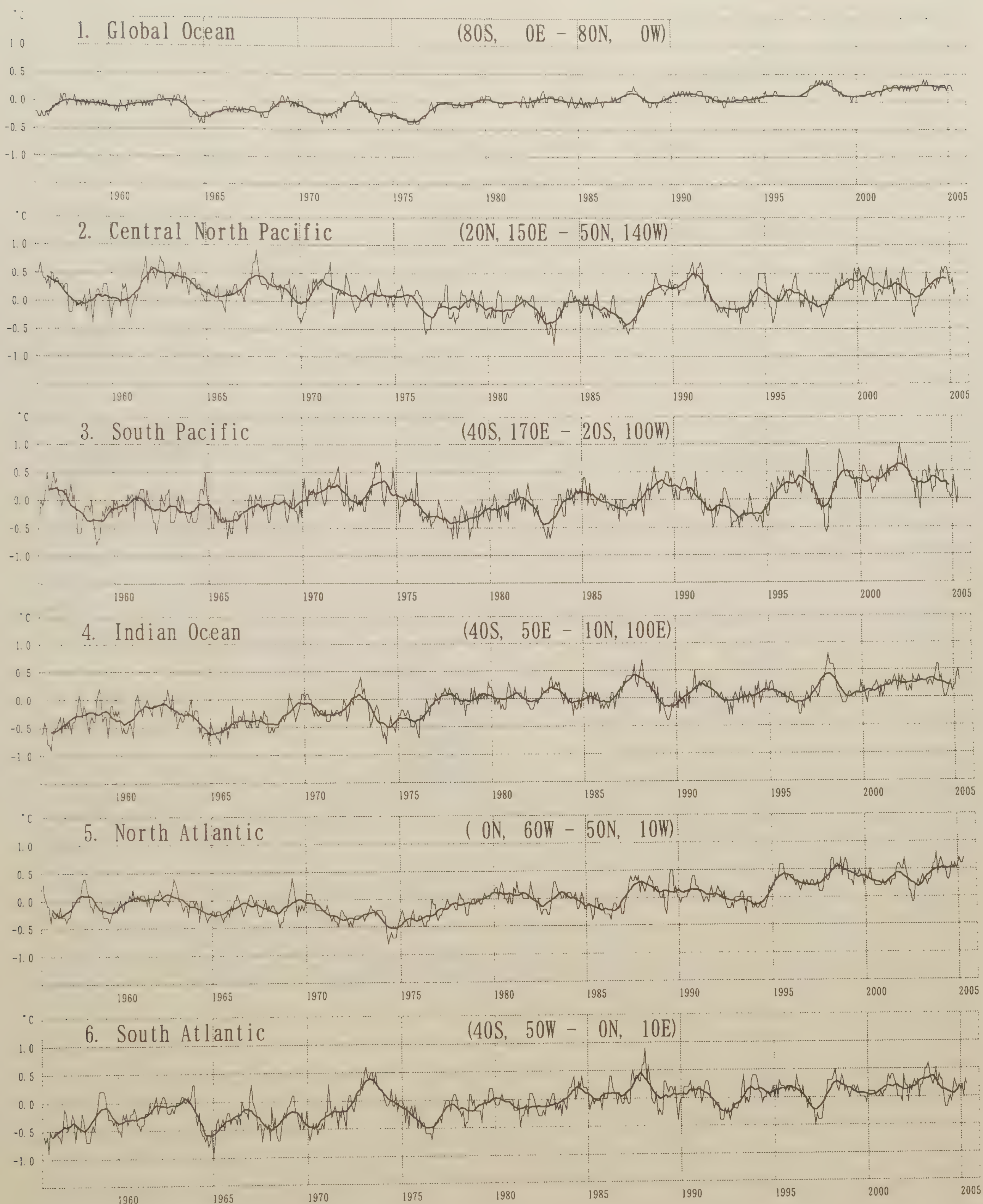
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Fig. 23　Monthly sea level anomalies for March 2005 obtained from mean sea level (1993-2001) adjusted for atmospheric pressure. This figure is prepared by the SOC of ISLP-PAC, Department of Oceanography, University of Hawaii.



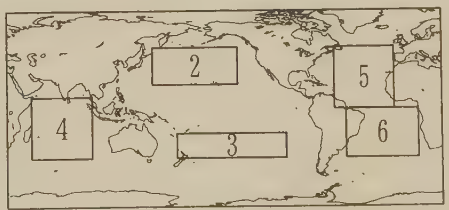
第 24 図　全球月平均海面高度偏差図 （2005 年 3 月）

Fig. 24　Monthly sea surface height anomalies in the global ocean derived from the altimeter data of Jason-1 for March 2005. Contour interval is 5 cm. Positive anomalies exceeding +5 cm are dark-shaded and negative anomalies exceeding -5 cm are light-shaded. Anomalies are computed from 1993-1998 base period means.

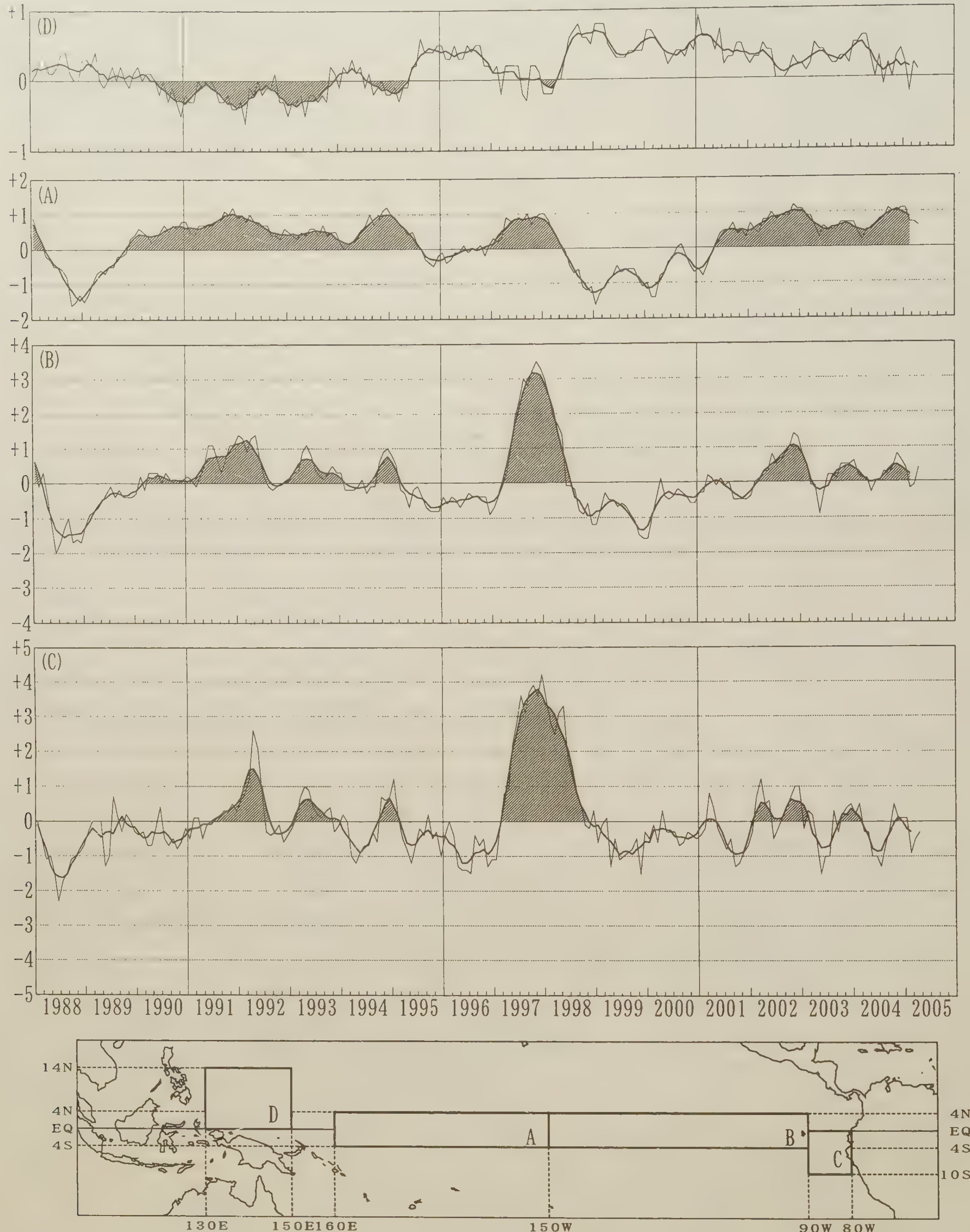


第25図 海域平均海面水温偏差の長期変動

Fig. 25 Long-term variations of monthly mean SST anomalies (°C) averaged for the sub-areas shown in the right panel. Anomalies are computed from the JMA climatology (1971-2000). Thin lines show the monthly mean and thick lines their 13-month running means.



Time Series of Tropical Pacific SST Anomalies



第26図　太平洋熱帯域の海面水温偏差時系列図

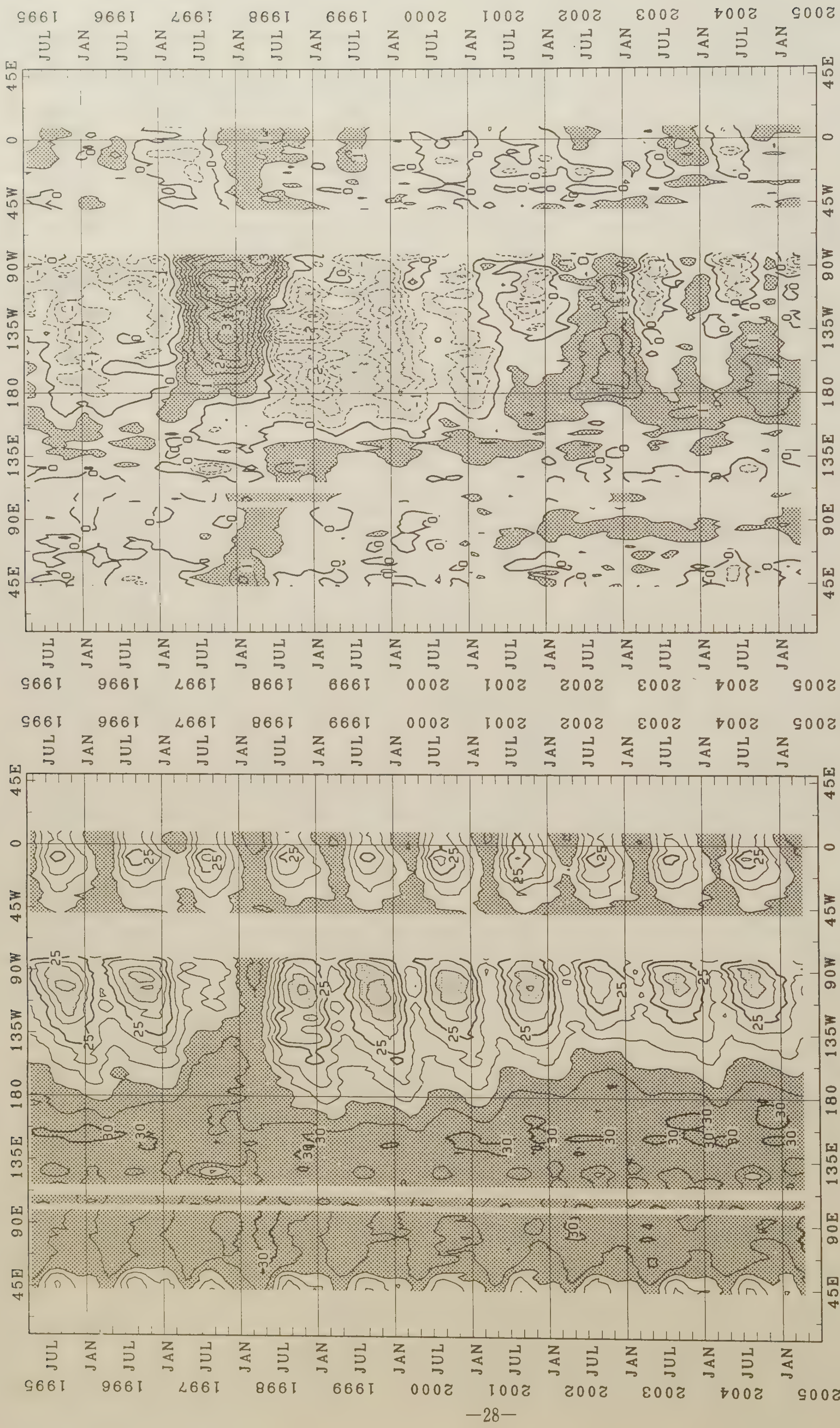
Fig. 26 Time series of monthly mean SST anomalies (°C) in the tropical Pacific Ocean for the areas indicated at the bottom panel. Thin lines show the monthly means and thick lines their 5-month running means. Positive anomalies (A, B, C) and negative anomalies (D) are shaded. Anomalies are computed from the JMA climatology (1971-2000).

Monitoring Indices in the Tropical Pacific

MONTH YEAR	SEA SURFACE TEMPERATURE AND ANOMALY (°C) REGION D 14N-EQ 130E-150E		REGION A 4N-4S 160E-150W		REGION B 4N-4S 150W-90W		REGION C EQ-10S 90W-80W		SOI	SEA LEVEL PRESSURE ANOMALY (hPa) TAHITI 17-33S 149-37W	DARWIN 12-24S 130-52E
JAN 03	28.7	0.2	29.1	1.1	26.2	0.8	24.3	-0.2	-0.1	-0.1	0.2
FEB 03	28.4	0.1	28.9	0.9	26.8	0.5	26.3	0.3	-0.5	-1.5	-0.2
MAR 03	28.7	0.2	29.0	0.9	27.0	-0.1	26.5	0.2	-0.3	-0.2	0.5
APR 03	29.3	0.5	28.8	0.6	27.1	-0.1	24.9	-0.5	-0.1	0.5	0.8
MAY 03	29.7	0.4	28.9	0.3	26.0	-0.9	22.8	-1.5	-0.6	-0.7	0.2
JUN 03	29.8	0.4	29.1	0.6	25.9	-0.3	21.9	-1.0	-0.9	-0.9	0.4
JUL 03	29.6	0.3	29.0	0.5	25.6	0.2	20.9	-1.0	0.2	0.7	0.3
AUG 03	29.4	0.2	28.9	0.5	24.9	0.2	21.2	0.3	0.0	-0.2	-0.1
SEP 03	29.5	0.2	28.9	0.5	24.8	0.1	20.2	-0.3	-0.1	-0.3	0.0
OCT 03	29.7	0.3	29.1	0.7	25.2	0.5	21.1	0.2	-0.1	-0.5	-0.4
NOV 03	29.6	0.3	29.1	0.7	25.2	0.5	22.2	0.4	-0.2	0.0	0.4
DEC 03	29.2	0.2	28.9	0.7	25.5	0.5	23.4	0.5	1.1	0.9	-1.1
JAN 04	29.0	0.5	28.7	0.7	26.0	0.6	24.7	0.2	-1.0	-1.5	0.9
FEB 04	28.8	0.5	28.4	0.4	26.5	0.2	26.5	0.5	0.8	1.4	-0.6
MAR 04	29.1	0.6	28.3	0.2	27.2	0.1	26.0	-0.3	0.1	-0.7	-1.3
APR 04	29.4	0.6	28.7	0.5	27.3	0.1	25.1	-0.3	-1.4	-1.0	1.3
MAY 04	29.6	0.3	29.1	0.5	26.6	-0.3	23.3	-1.0	1.2	0.9	-0.7
JUN 04	29.4	0.0	29.1	0.6	26.2	0.0	21.9	-1.0	-1.1	0.1	1.7
JUL 04	29.6	0.3	29.3	0.8	25.4	0.0	20.6	-1.3	-0.6	-0.2	0.9
AUG 04	29.1	-0.1	29.2	0.8	25.0	0.3	20.2	-0.7	-0.5	-0.5	0.3
SEP 04	29.5	0.2	29.5	1.1	24.9	0.2	20.3	-0.2	-0.2	0.4	0.9
OCT 04	29.4	0.0	29.4	1.0	25.1	0.4	21.4	0.5	-0.2	0.0	0.3
NOV 04	29.6	0.3	29.4	1.0	25.5	0.8	21.9	0.1	-0.7	-0.8	0.5
DEC 04	29.4	0.4	29.3	1.1	25.6	0.6	23.0	0.1	-0.7	-1.4	-0.1
JAN 05	28.7	0.2	29.1	1.1	25.8	0.4	24.6	0.1	0.3	0.3	-0.3
FEB 05	28.1	-0.2	28.7	0.7	26.1	-0.2	25.1	-0.9	-2.2	-3.8	1.9
MAR 05	28.7	0.2	28.8	0.7	27.0	-0.1	25.8	-0.5	0.2	0.8	0.5
APR 05	28.9	0.1	28.8	0.6	27.6	0.4	25.1	-0.3	-0.5	0.2	1.3

第1表　太平洋熱帯域の大気及び海洋の監視指数

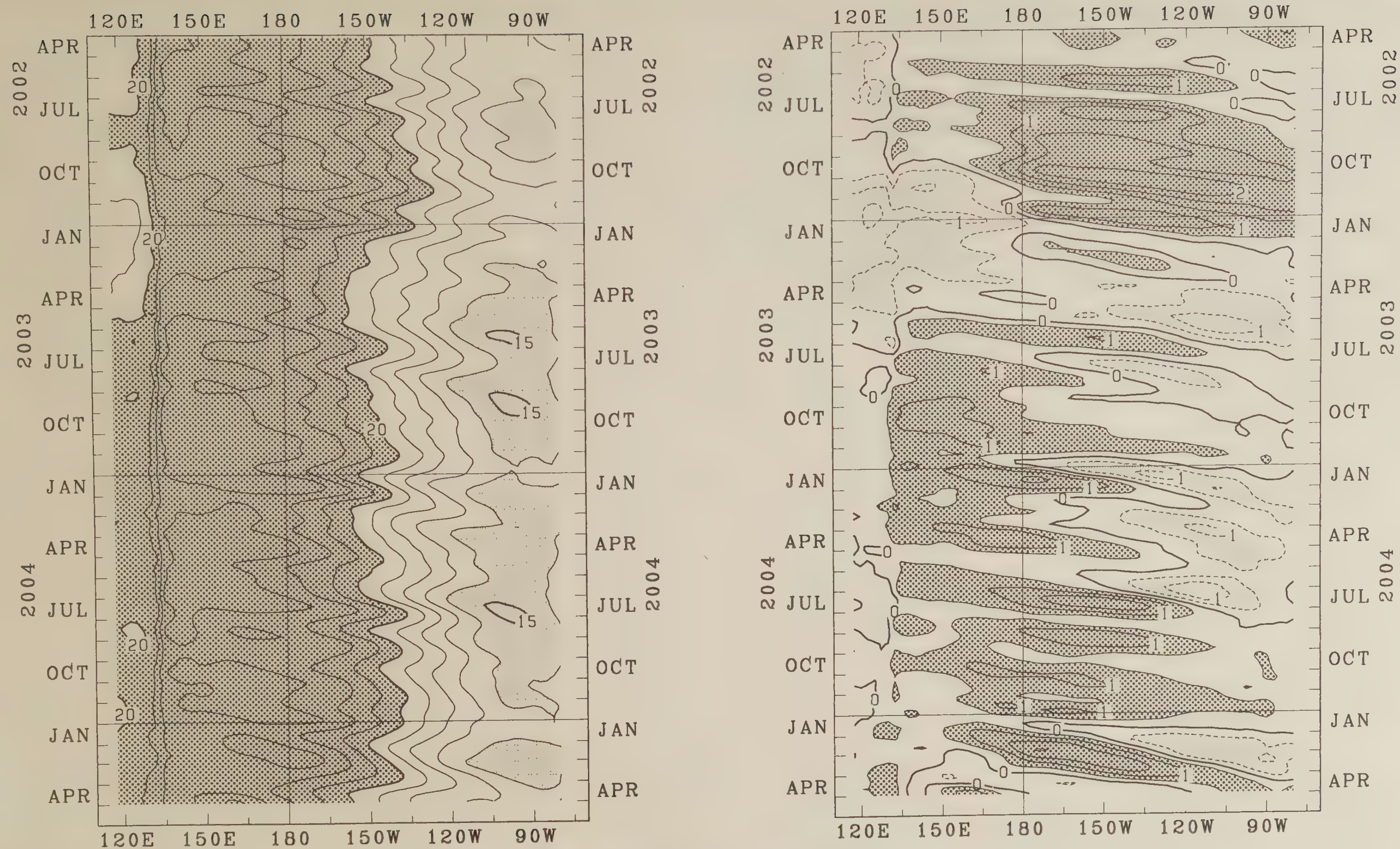
Table 1 Atmospheric and oceanic monitoring indices in the tropical Pacific Ocean



第 27 図　赤道に沿った海面水温（左）および偏差（右）の時間-経度断面図

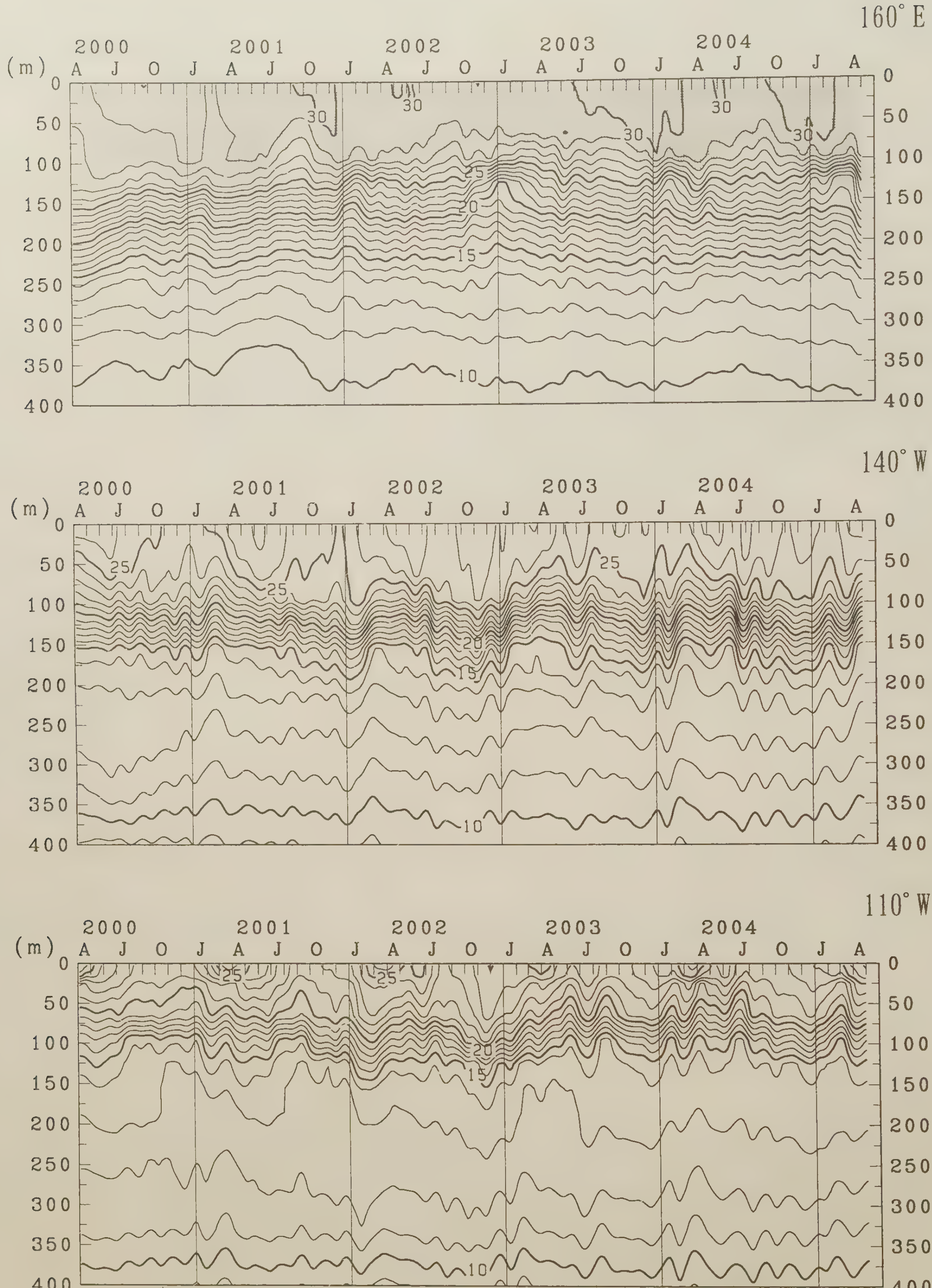
Fig. 27　Time-longitude sections of SSTs (left) and anomalies (right) along the equator (2˚N-2˚S) in the global ocean. Contour intervals are 1˚C (left) and 0.5˚C (right). Values greater than 28˚C (+0.5˚C) are dark-shaded and values less than 23˚C (-0.5˚C) are light-shaded in the left (right) panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1971-2000 base period means.

Time-Longitude Sections of Ocean Heat Content & Anomalies (Eq.)



第28図　太平洋の赤道に沿う海洋表層の貯熱量（左）及び偏差（右）の時間－経度断面図

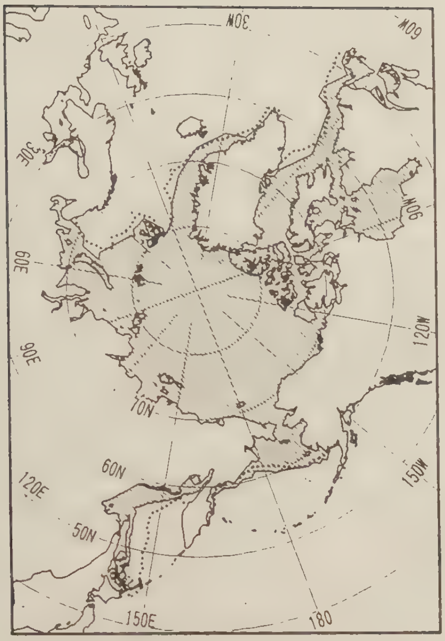
Fig. 28 Time-longitude sections of ocean heat content in the upper 260 m along the equator (left) and anomalies (right) in the Pacific Ocean. Data are derived from the Ocean Data Assimilation System of JMA. Contour intervals are 1°C (left) and 0.5°C (right). Values greater than 20°C (+0.5°C) are dark-shaded and values less than 16°C (-0.5°C) are light-shaded in the left (right) panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1987-2004 base period means.



第29図　太平洋赤道域の表層水温の時間－深度断面図

(上：西部、中：中部、下：東部)

Fig. 29　Time-depth sections of equatorial subsurface temperature for the western Pacific (top, 160° E), the central Pacific (middle, 140° W) and the eastern Pacific (bottom, 110° W). Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1° C. Values greater than 28° C are shaded.

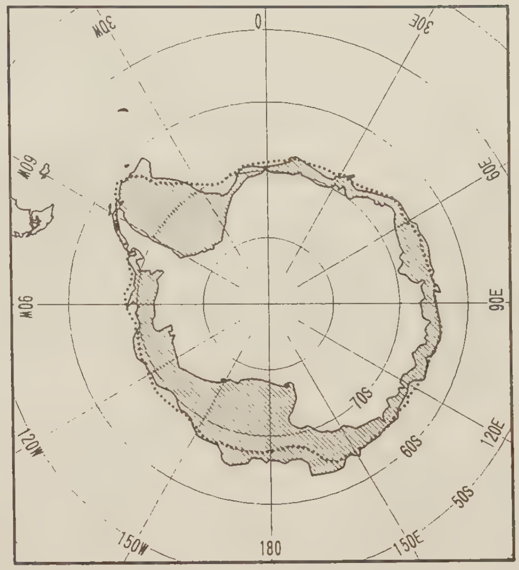


第30-1図　北極域の海氷図（2005年 4月15日）

Fig.30-1 Sea ice chart in the Arctic on 15 Apr. 2005.

The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge averaged for the period from 1972 through 1990.

The data source is the National Ice Center (USA).

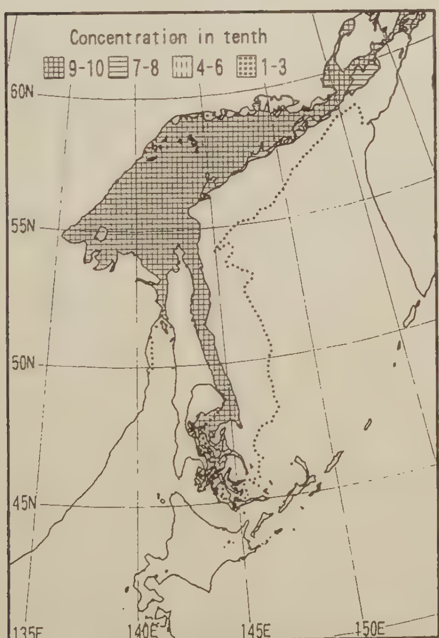


第30-2図　南極域の海氷図（2005年 4月14日）

Fig.30-2 Sea ice chart in the Antarctic on 14 Apr. 2005.

The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge averaged for the period from 1973 through 1990.

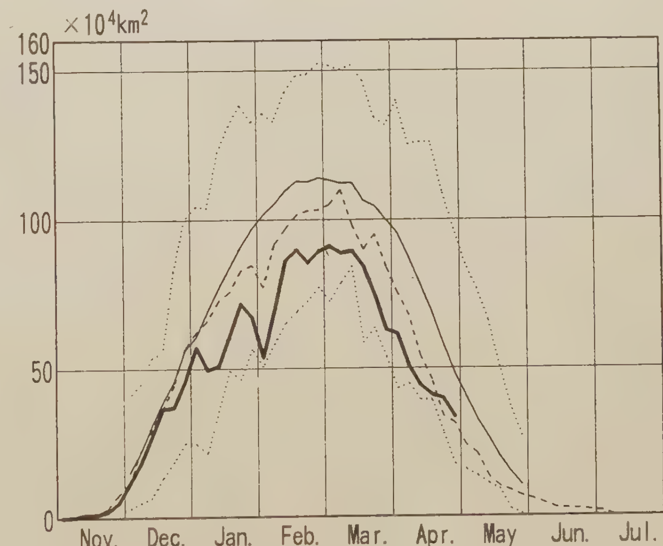
The data source is the National Ice Center (USA).



第30-3図 オホーツク海の海氷図（2005年 4月15日）

Fig.30-3 Sea ice chart in the Sea of Okhotsk on 15 Apr. 2005.

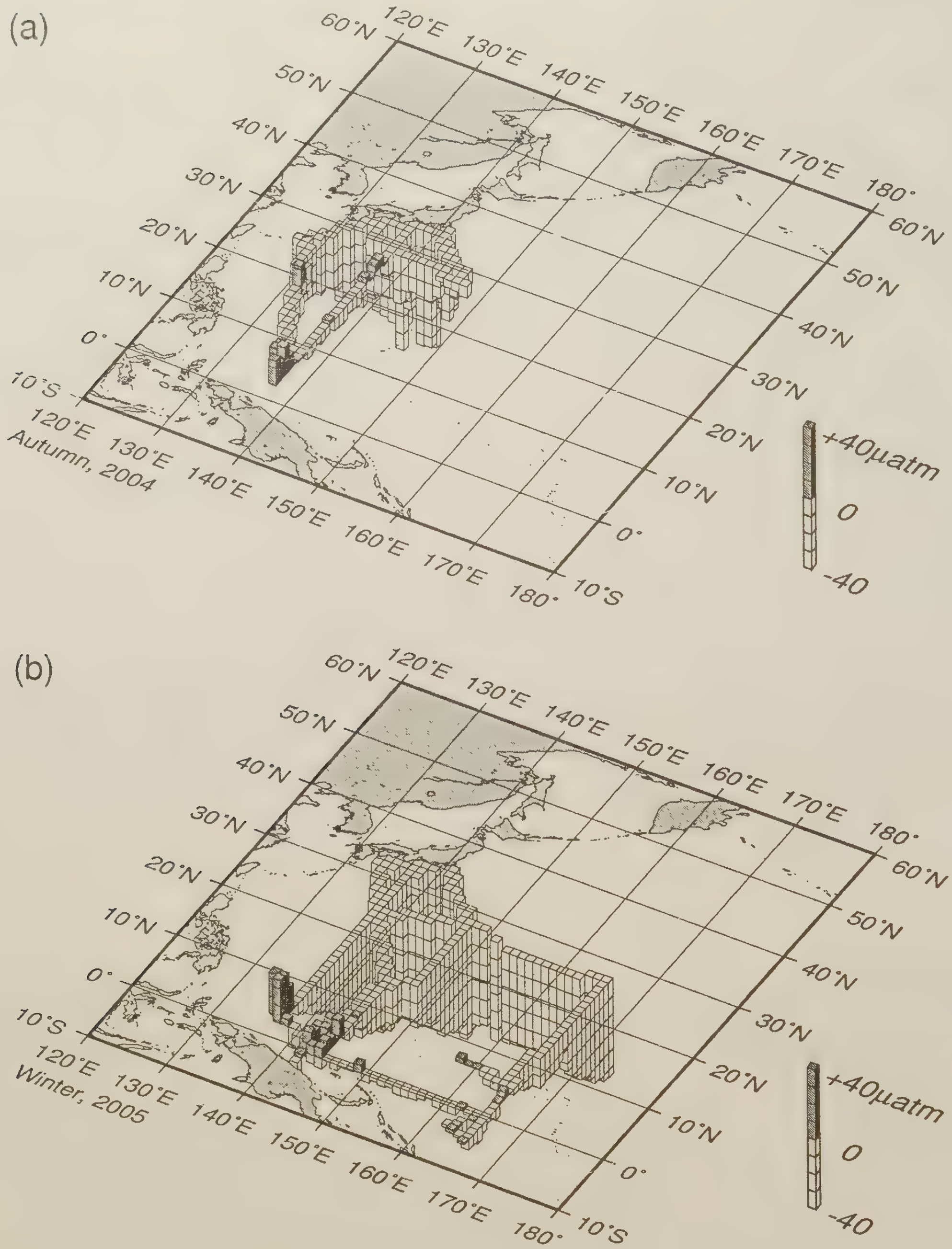
The dotted line denotes the mean ice edge averaged for the period from 1971 through 2000.



第30-4図 オホーツク海の海氷域面積

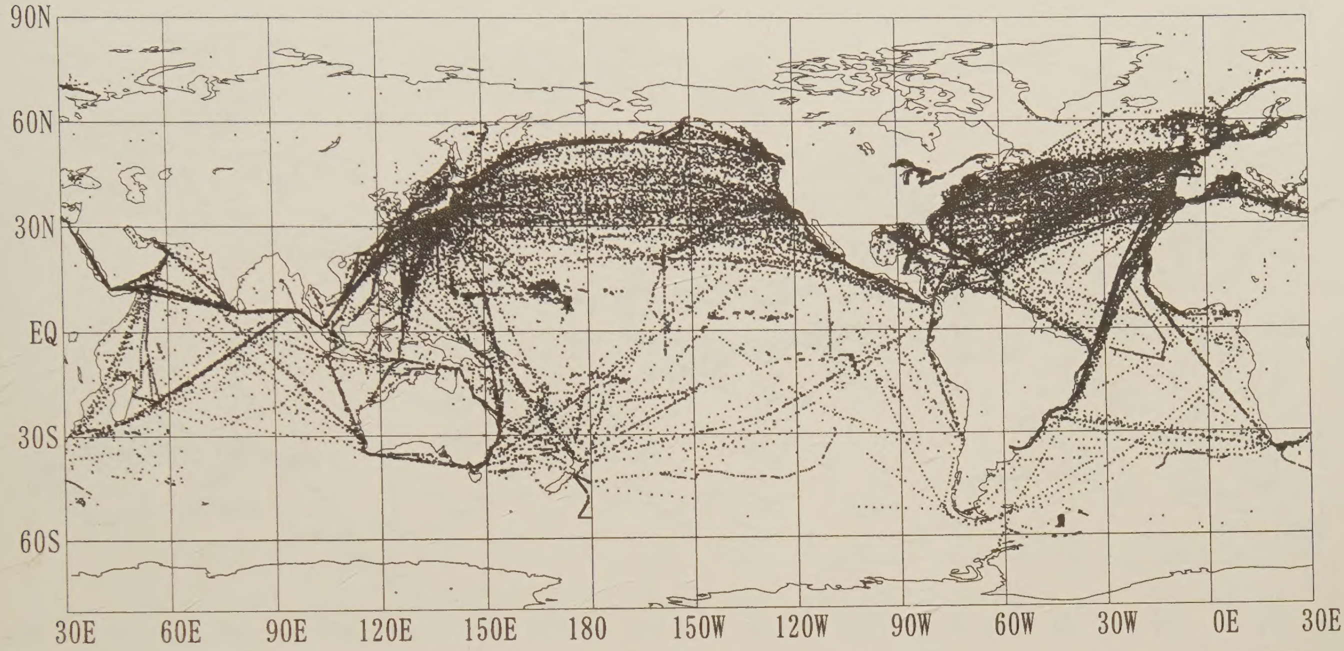
Fig.30-4 Time series of 5-day sea ice area in the Sea of Okhotsk.

———— : current season (2004/2005)
———— : mean extent (1971–2000)
·········· : maximum or minimum extent (1971–2004)
- - - - - - : last season (2003/2004)



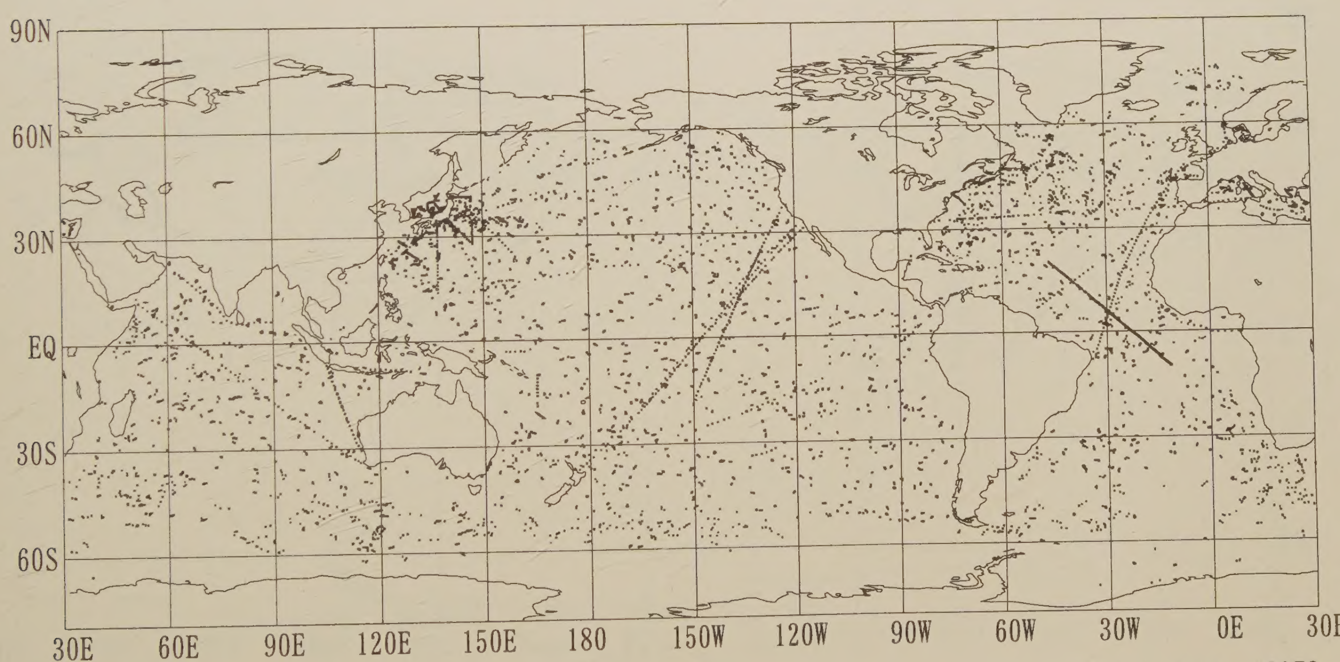
第31図　気象庁「凌風丸」及び神戸海洋気象台「啓風丸」が、(a)2004年10月21日から11月19日にかけてと、(b)2005年1月14日から3月10日にかけて北西太平洋で観測した洋上大気中と表面海水中とのCO_2の濃度差。棒グラフは、海洋から大気へCO_2を放出する場合を濃い陰影、海洋が大気のCO_2を吸収する場合を薄い陰影で示してある。

Fig. 31　Difference in the CO_2 concentration between the surface water and the overlying atmosphere in the western North Pacific observed by the R/V Ryofu Maru of the JMA and the R/V Keifu Maru of the Kobe Marine Observatory, (a) from October 21 to November 19, 2004 and (b) from January 14 to March 10, 2005. Darker-shaded upward pillars indicate that the oceanic CO_2 was emitted into the atmosphere, and lighter-shaded downward pillars indicate that the atmospheric CO_2 was absorbed into the ocean, respectively.



SHIP messages

Total data:192225

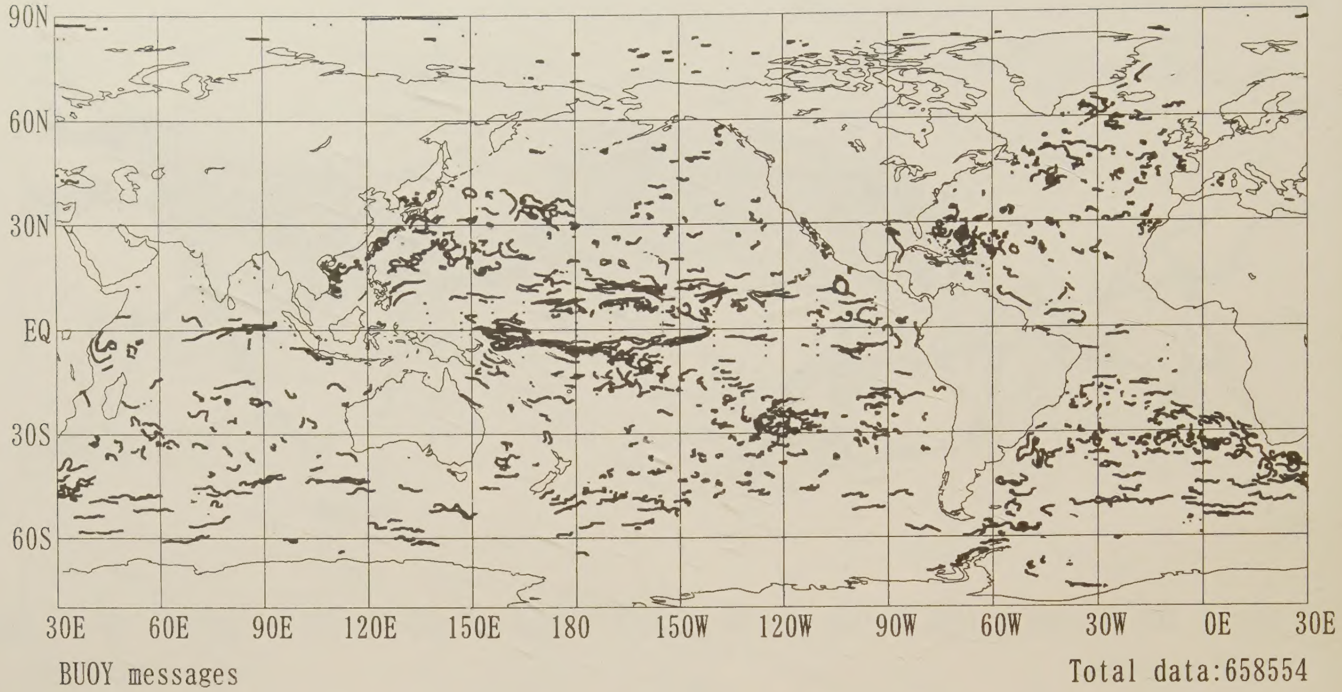


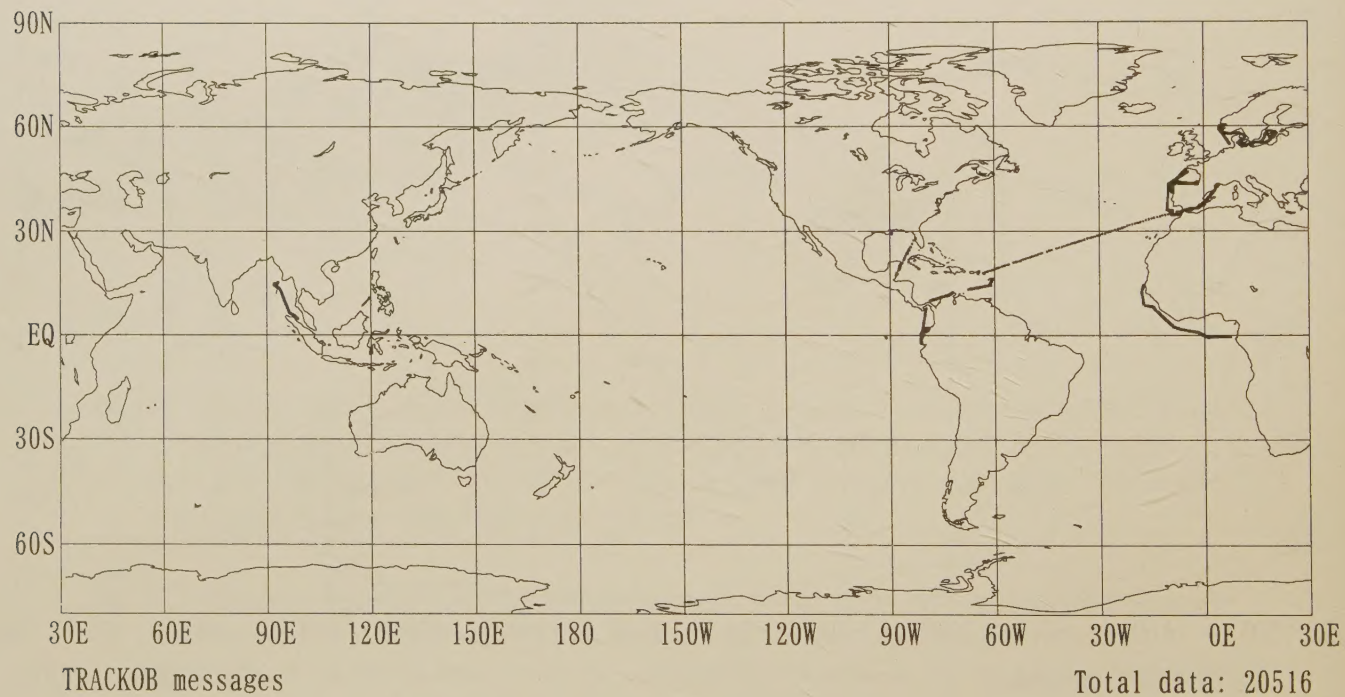
BATHY/TESAC messages

Total data: 18078

第32-1図　測点分布図(2005年 4月)

Fig. 32-1　Geographical distribution of SHIP messages (top) and BATHY/TESAC messages (bottom) for April 2005.





第32-2図　測点分布図(2005年 4月)

Fig. 32-2 Geographical distribution of BUOY messages (top) and TRACKOB messages (bottom) for April 2005.

気 象 庁 海 洋 月 報

Monthly Ocean Report

April 2005 (No. 148)

謝　　辞

本月報掲載の 2005 年 4 月のプロダクトには、気象庁が観測したデータ及び GTS（全球気象通信網）を通じて入手した国際気象通報式による通報のほか、下記の機関等から提供していただいたデータを使用しています。

防衛庁、海上保安庁

水産総合研究センター

宇宙航空研究開発機構

水産試験場等（北海道、青森県、岩手県、宮城県、秋田県、山形県、東京都、新潟県、富山県、石川県、福井県、静岡県、愛知県、京都府、兵庫県、和歌山県、鳥取県、島根県、佐賀県）

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